



# ***STIC Search Report***

***EIC 1700***

**STIC Database Tracking Number: 174335**

**TO: Michael Bernshteyn**

**Location: REM 10D18**

**Art Unit : 1713**

**December 15, 2005**

**Case Serial Number: 10/505346**

**From: Kathleen Fuller**

**Location: EIC 1700**

**REMSEN 4B28**

**Phone: 571/272-2505**

**Kathleen.Fuller@uspto.gov**

## **Search Notes**

There were only 8 CA references from searching formula 1 both as a monomer and as a polymer and combining with the paper utility.



# STIC Search Results Feedback Form

**EIC17000**

Questions about the scope or the results of the search? Contact *the EIC searcher* or contact:

Kathleen Fuller, EIC 1700 Team Leader  
571/272-2505 REMSEN 4B28

## Voluntary Results Feedback Form

- I am an examiner in Workgroup:  Example: 1713
- Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature  
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

**SEARCH REQUEST FORM**

*Rush* Scientific and Technical Information Center

Requester's Full Name: MICHAEL BERNSHTEYN Examiner #: 81515 Date: 12/15/05  
Art Unit: 1713 Phone Number 30 272-2411 Serial Number: 10/505,346  
Mail Box and Bldg/Room Location: Remsen 10D18 Results Format Preferred (circle): PAPER DISK E-MAIL

**If more than one search is submitted, please prioritize searches in order of need.**

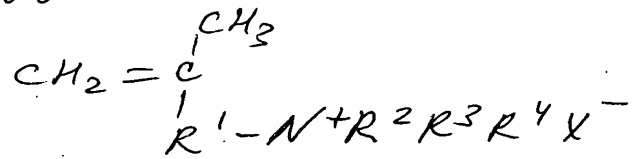
\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Papermaking chemicals method for manufacturing same  
Inventors (please provide full names): Toshitsugu Kiyosada, Akira Endou,  
Satory Iwata, Masatomi Ogawa  
Earliest Priority Filing Date: 02/22/2002

*\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Please, try to find the compounds with the general formula



Thank you  
M. Bernshbeyn

\*\*\*\*\*

**STAFF USE ONLY**

Searcher: <u>K. Fuller</u>	Type of Search	Vendors and cost where applicable
Searcher Phone #: _____	NA Sequence (#) _____	STN <u>✓</u>
Searcher Location: _____	AA Sequence (#) _____	Dialog _____
Date Searcher Picked Up: _____	Structure (#) <u>6</u>	Questel/Orbit _____
Date Completed: <u>12/15/05</u>	Bibliographic _____	Dr. Link _____
Searcher Prep & Review Time: <u>50</u>	Litigation _____	Lexis/Nexis _____
Clerical Prep Time: _____	Fulltext _____	Sequence Systems _____
Online Time: <u>40</u>	Patent Family _____	WWW/Internet _____
	Other _____	Other (specify) _____

=> file reg

FILE 'REGISTRY' ENTERED AT 15:36:50 ON 15 DEC 2005

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

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Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 14 DEC 2005 HIGHEST RN 869939-98-0

DICTIONARY FILE UPDATES: 14 DEC 2005 HIGHEST RN 869939-98-0

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

Please note that search-term pricing does apply when conducting SmartSELECT searches.

\*\*\*\*\*  
\*  
\* The CA roles and document type information have been removed from \*  
\* the IDE default display format and the ED field has been added, \*  
\* effective March 20, 2005. A new display format, IDERL, is now \*  
\* available and contains the CA role and document type information. \*  
\*  
\*\*\*\*\*

Structure search iteration limits have been increased. See HELP SLIMITS for details.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=> file hcaplu

FILE 'HCAPLUS' ENTERED AT 15:36:55 ON 15 DEC 2005

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PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

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FILE COVERS 1907 - 15 Dec 2005 VOL 143 ISS 25

FILE LAST UPDATED: 14 Dec 2005 (20051214/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

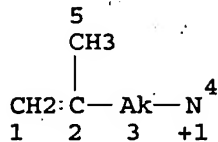
=> d que

L7

SCR 2043

L11

STR a



← 52 polymers containing a = this query  
or 562 monomers of a

NODE ATTRIBUTES:

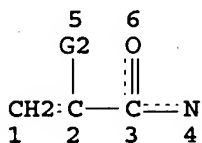
CHARGE IS E+1 AT 4  
CONNECT IS E2 RC AT 3  
DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED  
ECOUNT IS X4 C AT 3

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 5

STEREO ATTRIBUTES: NONE

L14 52 SEA FILE=REGISTRY SSS FUL L11 AND L7  
L17 STR b



acrylamide

VAR G2=H/CH3

NODE ATTRIBUTES:

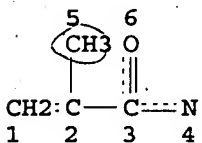
DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 6

STEREO ATTRIBUTES: NONE

L19 32 SEA FILE=REGISTRY SUB=L14 SSS FUL L17  
L20 14 SEA FILE=REGISTRY ABB=ON L19 AND 1/S  
L21 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

32 polymers with a and 3

14 polymers with SO<sub>3</sub>

1 polymer with ~~bo~~ as methacrylamide and a

NUMBER OF NODES IS 6

STEREO ATTRIBUTES: NONE

L23 1 SEA FILE=REGISTRY SUB=L14 SSS FUL L21  
 L24 1 SEA FILE=HCAPLUS ABB=ON L23  
 L25 1 SEA FILE=HCAPLUS ABB=ON L24 AND PAPER?/SC, SX, AB, BI  
 L26 3 SEA FILE=HCAPLUS ABB=ON L20  
 L27 3 SEA FILE=HCAPLUS ABB=ON L26 AND PAPER?/SC, SX, AB, BI  
 L28 7 SEA FILE=HCAPLUS ABB=ON L19  
 L29 7 SEA FILE=HCAPLUS ABB=ON L28 AND PAPER?/SC, SX, AB, BI  
 L30 11 SEA FILE=HCAPLUS ABB=ON L14  
 L31 7 SEA FILE=HCAPLUS ABB=ON L30 AND PAPER?/SC, SX, AB, BI  
 L32 7 SEA FILE=HCAPLUS ABB=ON L25 OR L27 OR L29 OR L31  
 L34 SCR 2040  
 L36 562 SEA FILE=REGISTRY SSS FUL L11 AND L34  
 L37 184 SEA FILE=HCAPLUS ABB=ON L36  
 L38 8 SEA FILE=HCAPLUS ABB=ON L37 AND PAPER?/SC, SX, AB, BI  
 L39 8 SEA FILE=HCAPLUS ABB=ON L32 OR L38

*8 CA references with paper utility*

=&gt; d l39 bib abs ind hitstr 1-8

L39 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 2005:371324 HCAPLUS  
 DN 142:412647  
 TI Aqueous dispersion with good dispersion stability and mech. stability for  
 paper  
 IN Ito, Kenichi; Hara, Tetsuya; Oishi, Kei; Sone, Naruhiko  
 PA Seiko PMC Corporation, Japan  
 SO PCT Int. Appl., 55 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005037920	A1	20050428	WO 2003-JP313344	20031020
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRAI	WO 2003-JP13344		20031020		

AB Title aqueous dispersion comprises (A) a polymeric dispersant obtained by polymerization of monomer CH<sub>2</sub>:C(CH<sub>3</sub>)R<sub>1</sub>N+R<sub>2</sub>R<sub>3</sub>R<sub>4</sub>X- and (meth)acrylamide, (B) ≥1 hydrophobic compound selected from rosin materials, 2-oxetanone compds., and substituted cyclic dicarboxylic anhydrides, and (C) water, wherein R<sub>1</sub> = C1-4 alkylene; R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> = H or alkyl (excluding two or three of R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> = H); and X = anion. Thus, 0.75 mol N,N-dimethyldodecylamine and 0.50 mol 1-chloro-2-methyl-2-propene were reacted at 50° to give N-dodecyl-N,N-dimethyl-2-trimethyl-2-propen-1-aminium chloride, 3 mol% of which was polymerized with 97 mol% acrylamide to give 25%-solid a copolymer solution with viscosity 1090 mPa·s and pH 4.9, 6 parts (solid base) of the resulting polymer dispersant was mixed with 60 parts maleated rosin gum and 40 parts rosin glycerol ester to give an aqueous

dispersion of sizing agent with viscosity 48 mPa-s, solid content 40%, average particle diameter 0.43  $\mu$ m, and good mech. stability.

IC ICM C08L033-26

ICS C08K005-00; D21H017-15; D21H017-17; D21H017-45; D21H017-62

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 43

ST aq dispersion stability mech paper;

dodecyldimethyltrimethylpropenaminium chloride acrylamide copolymer

dispersant prepn; polymer dispersant maleated rosin glycerol rosin ester

sizing agent

IT Cellulose pulp

Paper

Photographic paper

Sizes (agents)

(aqueous dispersion with good dispersion stability and mech. stability for paper)

IT Anhydrides

RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)

(cyclic, sizing agents; aqueous dispersion with good dispersion stability and mech. stability for paper)

IT Resin acids

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(esters, glycerol, sizing agents; aqueous dispersion with good dispersion stability and mech. stability for paper)

IT Rosin

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(fumarated, sizing agents; aqueous dispersion with good dispersion stability and mech. stability for paper)

IT Construction materials

(gypsum boards; aqueous dispersion with good dispersion stability and mech. stability for paper)

IT Cellulose pulp

(kraft; aqueous dispersion with good dispersion stability and mech. stability for paper)

IT Rosin

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(maleated, sizing agents; aqueous dispersion with good dispersion stability and mech. stability for paper)

IT Paper

(packaging; aqueous dispersion with good dispersion stability and mech. stability for paper)

IT Packaging materials

(paper; aqueous dispersion with good dispersion stability and mech. stability for paper)

IT Dispersing agents

(polymer; aqueous dispersion with good dispersion stability and mech. stability for paper)

IT Quaternary ammonium compounds, uses

RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)

(polymers, dispersants; aqueous dispersion with good dispersion stability and mech. stability for paper)

IT Paper

(recycled; aqueous dispersion with good dispersion stability and mech. stability for paper)

IT Rosin

RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)

(sizing agents; aqueous dispersion with good dispersion stability and mech. stability for paper)

- IT 620609-42-9P, Acrylamide-N,N-dimethyl-N-(2-methyl-2-propenyl)-1-dodecanaminium chloride copolymer 620609-43-0P, Acrylamide-N,N-dimethyl-N-(2-methyl-2-propenyl)-1-dodecanaminium chloride-isobutyl methacrylate copolymer 620609-44-1P, Acrylamide-cyclohexyl methacrylate-itaconic acid-sodium styrene sulfonate-N,N,N,2-tetramethyl-2-propen-1-aminium chloride copolymer 620609-45-2P, Acrylamide-N,N-dimethylaminopropylacrylamide-dodecylmethallyldimethylammonium chloride-methacrylic acid-sodium methallylsulfonate copolymer 620609-46-3P, Acrylamide-N,N-dimethylaminopropylacrylamide-dodecylmethallyldimethylammonium chloride-sodium 2-methyl-2-propensulfonate copolymer 620609-47-4P, Acrylamide-dodecylmethallyldimethylammonium chloride-methacrylic acid-sodium 2-methyl-2-propensulfonate copolymer 620609-48-5P, Acrylamide-N,N-dimethylaminopropylacrylamide-octadecylmethallyldimethylammonium chloride-methacrylic acid-sodium 2-methyl-2-propensulfonate copolymer 620609-49-6P 620609-50-9P, Acrylamide-acrylic acid-N,N-dimethylaminopropylacrylamide-N-dodecyl-N,N,2-trimethyl-2-propen-1-aminium chloride-sodium 2-methyl-2-propensulfonate copolymer 620609-51-0P, Acrylamide-N,N-dimethylaminopropylacrylamide-N-dodecyl-N,N,2-trimethyl-2-propen-1-aminium chloride-N-(2-hydroxyethyl)-N,N,2-trimethyl-2-propen-1-aminium chloride-methacrylic acid-sodium 2-methyl-2-propensulfonate copolymer 850457-58-8P, Acrylamide-cyclohexyl methacrylate-N,N-dimethyl-N-(2-methyl-2-propenyl)-benzenemethanaminium chloride-itaconic acid-sodium styrene sulfonate copolymer 850457-59-9P, Acrylamide-cyclohexyl methacrylate-N,N-dimethyl-N-(2-methyl-2-propenyl)-1-octadecanaminium chloride-itaconic acid-sodium styrene sulfonate copolymer 850457-60-2P, Acrylamide-cyclohexyl methacrylate-N,N-dimethyl-N-(2-methyl-2-propenyl)-1-octanaminium chloride-itaconic acid-sodium styrene sulfonate copolymer

RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)

(dispersant; aqueous dispersion with good dispersion stability and mech. stability for paper)

- IT 9008-63-3, Formaldehyde-sodium naphthalenesulfonate copolymer.

RL: MOA (Modifier or additive use); USES (Uses)

(dispersant; aqueous dispersion with good dispersion stability and mech. stability for paper)

- IT 16370-13-1P 33735-42-1P 91485-07-3P

122412-33-3P 585539-79-3P 620609-41-8P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(monomer for dispersant; aqueous dispersion with good dispersion stability and mech. stability for paper)

- IT 75-50-3, Trimethylamine, reactions 103-83-3, Dimethylbenzylamine 108-01-0, Dimethylaminoethanol 112-18-5 124-28-7, Dimethyloctadecylamine 563-47-3, 1-Chloro-2-methyl-2-propene 7378-99-6, Dimethyloctylamine

RL: RCT (Reactant); RACT (Reactant or reagent)

(reactant in monomer preparation for dispersant; aqueous dispersion with good dispersion stability and mech. stability for paper)

- IT 56-81-5DP, Glycerin, reaction products with gum rosin 108-31-6DP, Maleic anhydride, reaction products with gum rosin 110-17-8DP, Fumaric acid, reaction products with gum rosin

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)



(sizing agent; aqueous dispersion with good dispersion stability and mech. stability for paper)

IT 28777-98-2; Octadecenyl succinic anhydride 32072-96-1, Hexadecenyl succinic anhydride 75240-80-1, Heptadecylketene dimer

RL: TEM (Technical or engineered material use); USES (Uses)

(sizing agent; aqueous dispersion with good dispersion stability and mech. stability for paper)

IT 620609-42-9P, Acrylamide-N,N-dimethyl-N-(2-methyl-2-propenyl)-1-dodecanaminium chloride copolymer 620609-43-0P, Acrylamide-N,N-dimethyl-N-(2-methyl-2-propenyl)-1-dodecanaminium chloride-isobutyl methacrylate copolymer 620609-44-1P, Acrylamide-cyclohexyl methacrylate-itaconic acid-sodium styrene sulfonate-N,N,N,2-tetramethyl-2-propen-1-aminium chloride copolymer 620609-45-2P, Acrylamide-N,N-dimethylaminopropylacrylamide-dodecylmethallyldimethylammonium chloride-methacrylic acid-sodium methallylsulfonate copolymer 620609-46-3P, Acrylamide-N,N-dimethylaminopropylacrylamide-dodecylmethallyldimethylammonium chloride-sodium 2-methyl-2-propensulfonate copolymer 620609-47-4P, Acrylamide-dodecylmethallyldimethylammonium chloride-methacrylic acid-sodium 2-methyl-2-propensulfonate copolymer 620609-48-5P, Acrylamide-N,N-dimethylaminopropylacrylamide-octadecylmethallyldimethylammonium chloride-methacrylic acid-sodium 2-methyl-2-propensulfonate copolymer 620609-49-6P 620609-50-9P, Acrylamide-acrylic acid-N,N-dimethylaminopropylacrylamide-N-dodecyl-N,N,2-trimethyl-2-propen-1-aminium chloride-sodium 2-methyl-2-propensulfonate copolymer 620609-51-0P, Acrylamide-N,N-dimethylaminopropylacrylamide-N-dodecyl-N,N,2-trimethyl-2-propen-1-aminium chloride-N-(2-hydroxyethyl)-N,N,2-trimethyl-2-propen-1-aminium chloride-methacrylic acid-sodium 2-methyl-2-propensulfonate copolymer 850457-58-8P, Acrylamide-cyclohexyl methacrylate-N,N-dimethyl-N-(2-methyl-2-propenyl)-benzenemethanaminium chloride-itaconic acid-sodium styrene sulfonate copolymer 850457-59-9P, Acrylamide-cyclohexyl methacrylate-N,N-dimethyl-N-(2-methyl-2-propenyl)-1-octadecanaminium chloride-itaconic acid-sodium styrene sulfonate copolymer 850457-60-2P, Acrylamide-cyclohexyl methacrylate-N,N-dimethyl-N-(2-methyl-2-propenyl)-1-octanaminium chloride-itaconic acid-sodium styrene sulfonate copolymer

RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP. (Preparation); USES (Uses)

(dispersant; aqueous dispersion with good dispersion stability and mech. stability for paper)

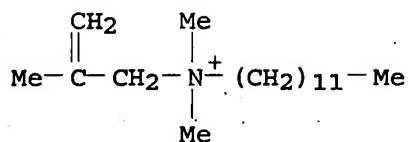
RN 620609-42-9 HCAPLUS

CN 1-Dodecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride, polymer with 2-propenamide (9CI) (CA INDEX NAME)

CM 1

CRN 33735-42-1

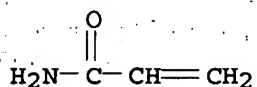
CMF C18 H38 N . Cl

● Cl<sup>-</sup>

CM 2

CRN 79-06-1

CMF C3 H5 N O



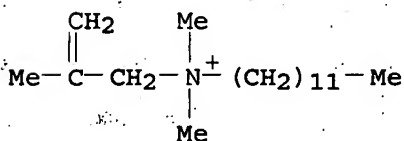
RN 620609-43-0 HCAPLUS

CN 1-Dodecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride, polymer with 2-methylpropyl 2-methyl-2-propenoate and 2-propenamide (9CI) (CA INDEX NAME)

CM 1

CRN 33735-42-1

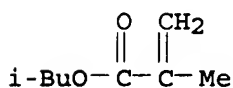
CMF C18 H38 N . Cl

● Cl<sup>-</sup>

CM 2

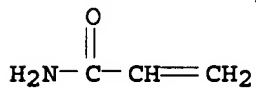
CRN 97-86-9

CMF C8 H14 O2



CM 3

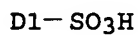
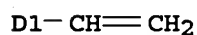
CRN 79-06-1  
CMF C3 H5 N O



RN 620609-44-1 HCAPLUS  
CN 2-Propen-1-aminium, N,N,N,2-tetramethyl-, chloride, polymer with  
cyclohexyl 2-methyl-2-propenoate, methylenebutanedioic acid, 2-propenamide  
and sodium ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

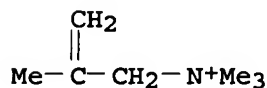
CRN 27457-28-9  
CMF C8 H8 O3 S . Na  
CCI IDS



● Na

CM 2

CRN 16370-13-1  
CMF C7 H16 N . Cl

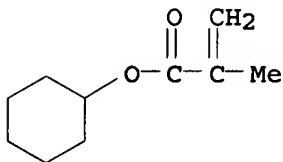


● Cl<sup>-</sup>

CM 3

CRN 101-43-9

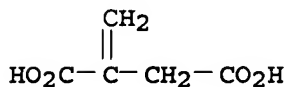
CMF C10 H16 O2



CM 4

CRN 97-65-4

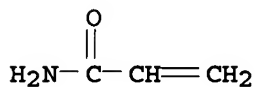
CMF C5 H6 O4



CM 5

CRN 79-06-1

CMF C3 H5 N O



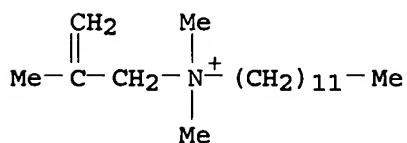
RN 620609-45-2 HCAPLUS

CN 1-Dodecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride, polymer with N-[3-(dimethylamino)propyl]-2-propenamide, 2-methyl-2-propenoic acid, 2-propenamide and sodium 2-methyl-2-propene-1-sulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 33735-42-1

CMF C18 H38 N . Cl

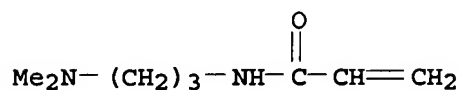


a

● Cl<sup>-</sup>

CM 2

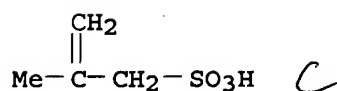
CRN 3845-76-9  
CMF C8 H16 N2 O



*b not methacrylamide*

CM 3

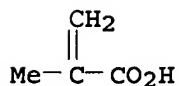
CRN 1561-92-8  
CMF C4 H8 O3 S . Na



● Na

CM 4

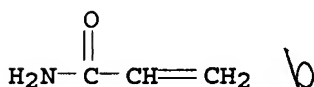
CRN 79-41-4  
CMF C4 H6 O2



*d 2-*

CM 5

CRN 79-06-1  
CMF C3 H5 N O

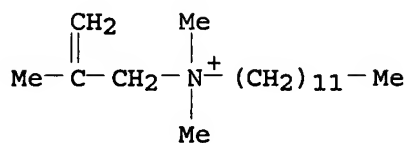


*b*

RN 620609-46-3 HCAPLUS  
CN 1-Dodecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride, polymer with N-[3-(dimethylamino)propyl]-2-propenamide, 2-propenamide and sodium 2-methyl-2-propene-1-sulfonate (9CI) (CA INDEX NAME)

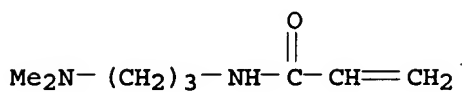
CM 1

CRN 33735-42-1  
CMF C18 H38 N . Cl

● Cl<sup>-</sup>

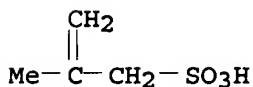
CM 2

CRN 3845-76-9  
CMF C8 H16 N2 O



CM 3

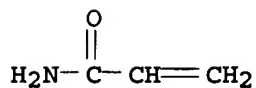
CRN 1561-92-8  
CMF C4 H8 O3 S . Na



● Na

CM 4

CRN 79-06-1  
CMF C3 H5 N O



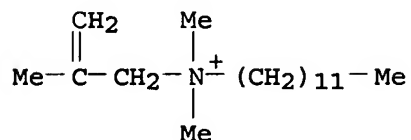
RN 620609-47-4 HCAPLUS

CN 1-Dodecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride, polymer  
with 2-methyl-2-propenoic acid, 2-propenamide and sodium  
2-methyl-2-propene-1-sulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 33735-42-1

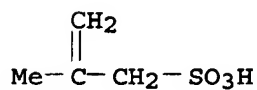
CMF C18 H38 N . Cl

● Cl<sup>-</sup>

CM 2

CRN 1561-92-8

CMF C4 H8 O3 S . Na

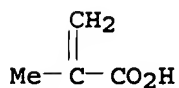


● Na

CM 3

CRN 79-41-4

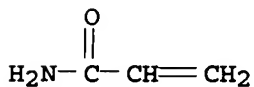
CMF C4 H6 O2



CM 4

CRN 79-06-1

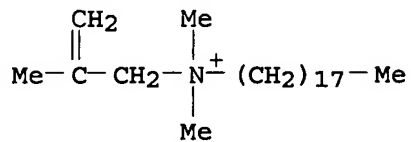
CMF C3 H5 N O



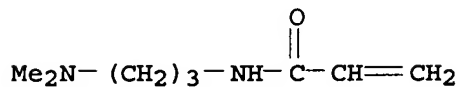
RN 620609-48-5 HCAPLUS

CN 1-Octadecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride,  
polymer with N-[3-(dimethylamino)propyl]-2-propenamide,  
2-methyl-2-propenoic acid, 2-propenamide and sodium 2-methyl-2-propene-1-  
sulfonate (9CI) (CA INDEX NAME)

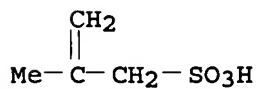
CM 1

CRN 585539-79-3  
CMF C24 H50 N . Cl● Cl<sup>-</sup>

CM 2

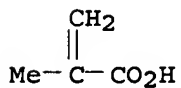
CRN 3845-76-9  
CMF C8 H16 N2 O

CM 3

CRN 1561-92-8  
CMF C4 H8 O3 S . Na

● Na

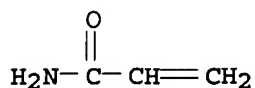
CM 4

CRN 79-41-4  
CMF C4 H6 O2

CM 5



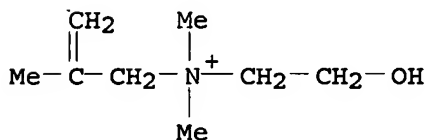
CRN 79-06-1  
CMF C3 H5 N O



RN 620609-49-6 HCAPLUS  
CN 2-Propen-1-aminium, N-(2-hydroxyethyl)-N,N,2-trimethyl-, chloride, polymer with N-[3-(dimethylamino)propyl]-2-propenamide, 2-methyl-2-propenoic acid, 2-propenamide and sodium 2-methyl-2-propene-1-sulfonate (9CI) (CA INDEX NAME)

CM 1

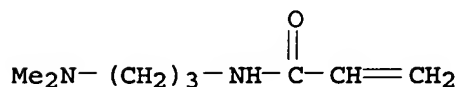
CRN 91485-07-3  
CMF C8 H18 N O . Cl



● Cl<sup>-</sup>

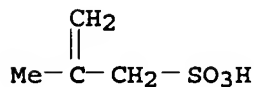
CM 2

CRN 3845-76-9  
CMF C8 H16 N2 O



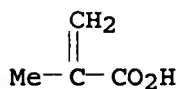
CM 3

CRN 1561-92-8  
CMF C4 H8 O3 S . Na

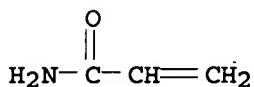


● Na

CM 4

CRN 79-41-4  
CMF C4 H6 O2

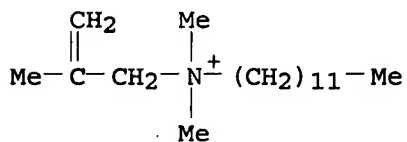
CM 5

CRN 79-06-1  
CMF C3 H5 N O

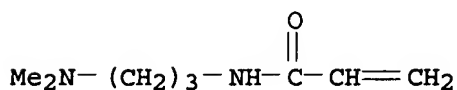
RN 620609-50-9 HCAPLUS

CN 1-Dodecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride, polymer with N-[3-(dimethylamino)propyl]-2-propenamide, 2-propenamide, 2-propenoic acid and sodium 2-methyl-2-propene-1-sulfonate (9CI) (CA INDEX NAME)

CM 1

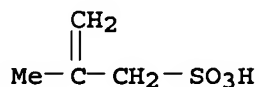
CRN 33735-42-1  
CMF C18 H38 N . Cl● Cl<sup>-</sup>

CM 2

CRN 3845-76-9  
CMF C8 H16 N2 O

CM 3

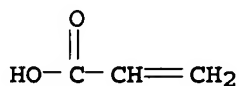
CRN 1561-92-8  
CMF C4 H8 O3 S . Na



● Na

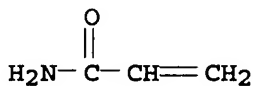
CM 4

CRN 79-10-7  
CMF C3 H4 O2



CM 5

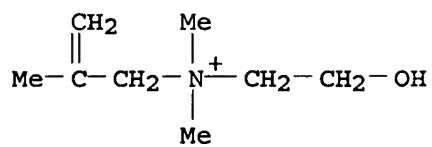
CRN 79-06-1  
CMF C3 H5 N O



RN 620609-51-0 HCAPLUS  
CN 1-Dodecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride, polymer with N-[3-(dimethylamino)propyl]-2-propenamide, N-(2-hydroxyethyl)-N,N,2-trimethyl-2-propen-1-aminium chloride, 2-methyl-2-propenoic acid, 2-propenamide and sodium 2-methyl-2-propene-1-sulfonate (9CI) (CA INDEX NAME)

CM 1

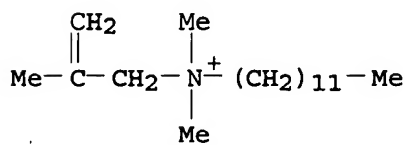
CRN 91485-07-3  
CMF C8 H18 N O . Cl

● Cl<sup>-</sup>

CM 2

CRN 33735-42-1

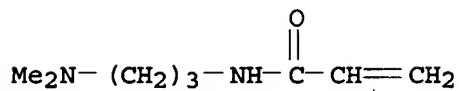
CMF C18 H38 N . Cl

● Cl<sup>-</sup>

CM 3

CRN 3845-76-9

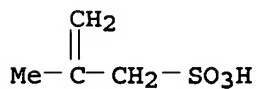
CMF C8 H16 N2 O



CM 4

CRN 1561-92-8

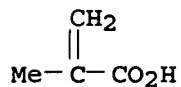
CMF C4 H8 O3 S . Na



● Na

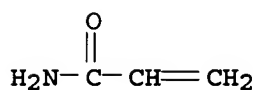
CM 5

CRN 79-41-4  
CMF C4 H6 O2



CM 6

CRN 79-06-1  
CMF C3 H5 N O

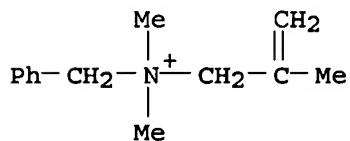


RN 850457-58-8 HCAPLUS

CN Benzenemethanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride, polymer with cyclohexyl 2-methyl-2-propenoate, methylenebutanedioic acid, 2-propenamide and sodium ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

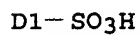
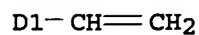
CRN 122412-33-3  
CMF C13 H20 N . Cl



● Cl<sup>-</sup>

CM 2

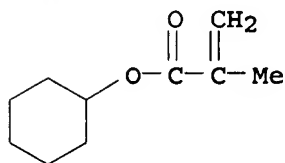
CRN 27457-28-9  
CMF C8 H8 O3 S . Na  
CCI IDS



CM 3

CRN 101-43-9

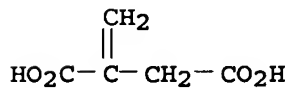
CMF C10 H16 O2



CM 4

CRN 97-65-4

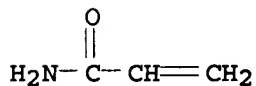
CMF C5 H6 O4



CM 5

CRN 79-06-1

CMF C3 H5 N O



RN 850457-59-9 HCAPLUS

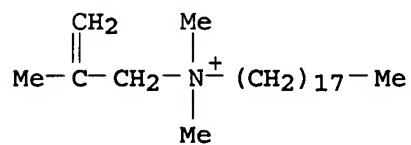
CN 1-Octadecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride,  
polymer with cyclohexyl 2-methyl-2-propenoate, methylenebutanedioic acid,

2-propenamide and sodium ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 585539-79-3

CMF C24 H50 N . Cl

● Cl<sup>-</sup>

CM 2

CRN 27457-28-9

CMF C8 H8 O3 S . Na

CCI IDS

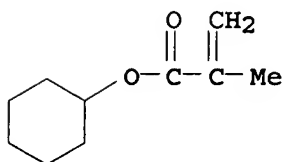
D1-CH=CH<sub>2</sub>D1-SO<sub>3</sub>H

● Na

CM 3

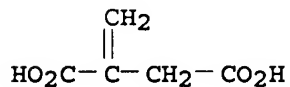
CRN 101-43-9

CMF C10 H16 O2



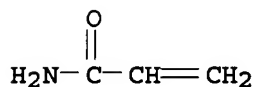
CM 4

CRN 97-65-4  
CMF C5 H6 O4



CM 5

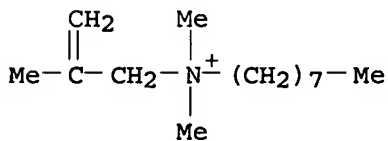
CRN 79-06-1  
CMF C3 H5 N O



RN 850457-60-2 HCAPLUS  
CN 1-Octanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride, polymer with cyclohexyl 2-methyl-2-propenoate, methylenebutanedioic acid, 2-propenamide and sodium ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 620609-41-8  
CMF C14 H30 N . Cl

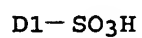
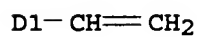


● Cl<sup>-</sup>

CM 2

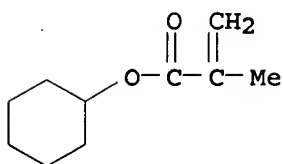
CRN 27457-28-9  
CMF C8 H8 O3 S . Na  
CCI IDS





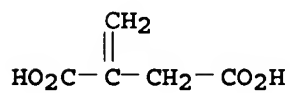
CM 3

CRN 101-43-9  
CMF C10 H16 O2



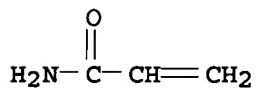
CM 4

CRN 97-65-4  
CMF C5 H6 O4



CM 5

CRN 79-06-1  
CMF C3 H5 N O



IT 16370-13-1P 33735-42-1P 91485-07-3P  
122412-33-3P 585539-79-3P 620609-41-8P

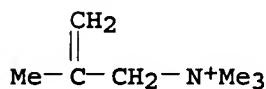
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT

(Reactant or reagent)

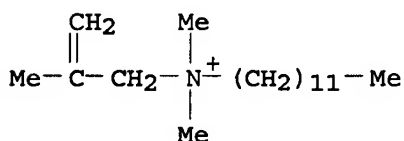
(monomer for dispersant; aqueous dispersion with good dispersion stability and mech. stability for paper)

RN 16370-13-1 HCAPLUS

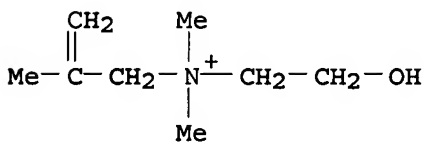
CN 2-Propen-1-aminium, N,N,N,2-tetramethyl-, chloride (9CI) (CA INDEX NAME)

● Cl<sup>-</sup>

RN 33735-42-1 HCAPLUS

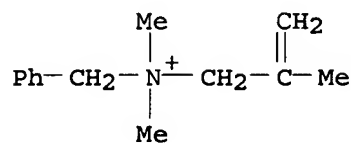
CN 1-Dodecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride (9CI)  
(CA INDEX NAME)● Cl<sup>-</sup>

RN 91485-07-3 HCAPLUS

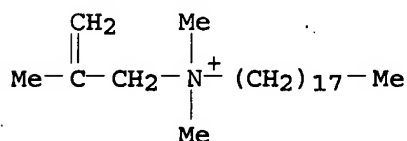
CN 2-Propen-1-aminium, N-(2-hydroxyethyl)-N,N,2-trimethyl-, chloride (9CI)  
(CA INDEX NAME)● Cl<sup>-</sup>

RN 122412-33-3 HCAPLUS

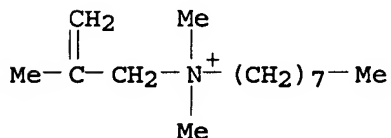
CN Benzenemethanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride  
(9CI) (CA INDEX NAME)

● Cl<sup>-</sup>

RN 585539-79-3 HCAPLUS

CN 1-Octadecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride (9CI)  
(CA INDEX NAME)● Cl<sup>-</sup>

RN 620609-41-8 HCAPLUS

CN 1-Octanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride (9CI) (CA  
INDEX NAME)● Cl<sup>-</sup>RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:798649 HCAPLUS

DN 141:297549

TI Cationic polymers and paper containing them

IN Kosuga, Masanori; Ogawa, Masatomi

PA Seiko PMC Corporation, Japan

SO Jpn. Kokai Tokkyo Koho, 20 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI JP 2004269630 A2 20040930 JP 2003-60413 20030306  
PRAI JP 2003-60413 20030306

AB The polymers, useful for coagulants or auxiliary sizing agents, are prepared by polymerization of  $H_2C:CMer_1N+R_2R_3R_4X-$  [ $R_1 = C_1-4$  alkylene;  $R_2-4 = H$ , (un)substituted  $C_{\leq 30}$  alkyl, except 2 or 3 of  $R_2-4$  being  $H$ ;  $X- =$  (in)organic acid anion], cationic monomers, and optionally nonionic monomers. Thus, 78% methacryloyloxyethyltrimethylammonium chloride 285.7, 76% methacryloyloxyethyldimethylbenzylammonium chloride 21.11, and 5% N-hydroxyethyl-N,N,2-trimethyl-2-propen-1-aminium chloride 4.06 g were polymerized in  $H_2O$  in the presence of citric acid and ammonium persulfate to give a 30% solid polymer (A; viscosity 3200 mPa-s at 25°, pH 3.3). Then 3% deinked pulp was mixed with 100 ppm A, stirred, and filtered to show 620-nm transmittance and ionization degree of the filtrate 92.1% and -0.04 mequiv/L, resp.

IC ICM C08F226-02  
ICS C08F220-34; D21C009-08; D21H017-45; D21H021-02; D21H021-16

CC 43-7 (Cellulose, Lignin, Paper, and Other Wood Products):  
Section cross-reference(s): 37

ST hydroxyethyltrimethylpropenaminium methacryloyloxyethyl methylammonium polymer paper flocculant; cationic polymer paper sizing aid

IT Flocculants  
Paper  
Sizes (agents)  
(cationic polymers for flocculants or sizing aids for paper)

IT Polyelectrolytes  
(cationic; cationic polymers for flocculants or sizing aids for paper)

IT 762303-90-2P 762303-91-3P 762303-92-4P  
762303-93-5P 762303-94-6P 762303-95-7P  
762303-96-8P 762303-97-9P 762303-98-0P  
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PRP (Properties); PREP (Preparation); USES (Uses)  
(cationic polymers for flocculants or sizing aids for paper)

IT 762303-90-2P 762303-91-3P 762303-92-4P  
762303-93-5P 762303-94-6P 762303-95-7P  
762303-96-8P 762303-97-9P 762303-98-0P  
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PRP (Properties); PREP (Preparation); USES (Uses)  
(cationic polymers for flocculants or sizing aids for paper)

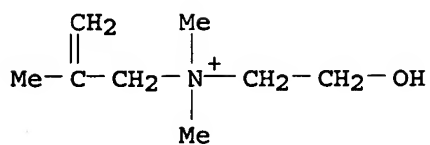
RN 762303-90-2 HCAPLUS

CN Benzenemethanaminium, N,N-dimethyl-N-[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]-, chloride, polymer with N-(2-hydroxyethyl)-N,N,2-trimethyl-2-propen-1-aminium chloride and N,N,N-trimethyl-2-[(2-methyl-1-oxo-2-propenyl)oxy]ethanaminium chloride (9CI) (CA INDEX NAME)

CM 1

CRN 91485-07-3

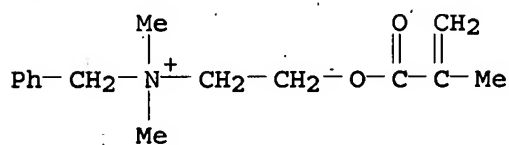
CMF C8 H18 N O . Cl

● Cl<sup>-</sup>

CM 2

CRN 46917-07-1

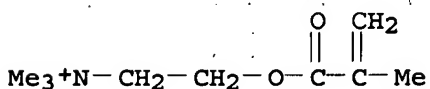
CMF C15 H22 N O2 . Cl

● Cl<sup>-</sup>

CM 3

CRN 5039-78-1

CMF C9 H18 N O2 . Cl

● Cl<sup>-</sup>

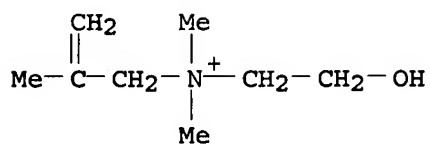
RN 762303-91-3 HCAPLUS

CN Benzenemethanaminium, N,N-dimethyl-N-[2-[(1-oxo-2-propenyl)oxy]ethyl]-, chloride, polymer with N-(2-hydroxyethyl)-N,N,2-trimethyl-2-propen-1-aminium chloride and N,N,N-trimethyl-2-[(1-oxo-2-propenyl)oxy]ethanaminium chloride (9CI) (CA INDEX NAME)

CM 1

CRN 91485-07-3

CMF C8 H18 N O . Cl

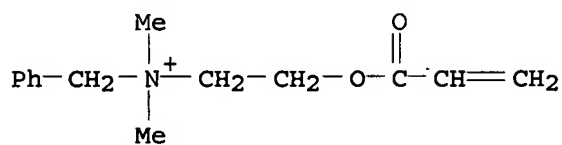


● Cl<sup>-</sup>

CM 2

CRN 46830-22-2

CMF C14 H20 N O2 . Cl

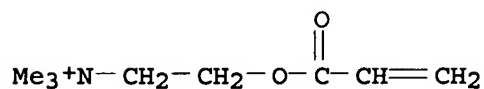


● Cl<sup>-</sup>

CM 3

CRN 44992-01-0

CMF C8 H16 N O2 . Cl



● Cl<sup>-</sup>

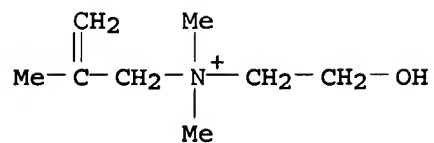
RN 762303-92-4 HCAPLUS

CN 2-Propen-1-aminium, N-(2-hydroxyethyl)-N,N,2-trimethyl-, chloride, polymer with 2-propenamide and N,N,N-trimethyl-2-[(1-oxo-2-propenyl)oxy]ethanaminium chloride (9CI) (CA INDEX NAME)

CM 1

CRN 91485-07-3

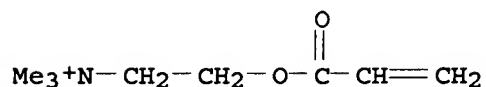
CMF C8 H18 N O . Cl

● Cl<sup>-</sup>

CM 2

CRN 44992-01-0

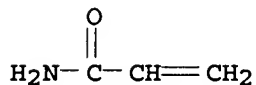
CMF C8 H16 N O2 . Cl

● Cl<sup>-</sup>

CM 3

CRN 79-06-1

CMF C3 H5 N O



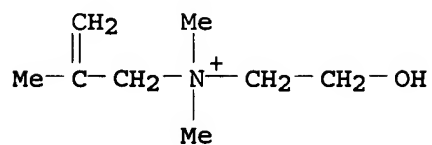
RN 762303-93-5 HCAPLUS

CN 2-Propen-1-aminium, N,N-dimethyl-N-2-propenyl-, chloride, polymer with ethyl 2-propenoate and N-(2-hydroxyethyl)-N,N,2-trimethyl-2-propen-1-aminium chloride (9CI) (CA INDEX NAME)

CM 1

CRN 91485-07-3

CMF C8 H18 N O . Cl

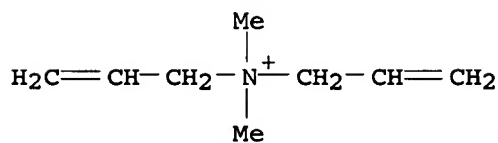


● Cl<sup>-</sup>

CM 2

CRN 7398-69-8

CMF C8 H16 N . Cl

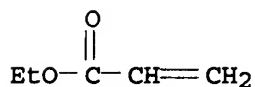


● Cl<sup>-</sup>

CM 3

CRN 140-88-5

CMF C5 H8 O2



RN 762303-94-6 HCAPLUS

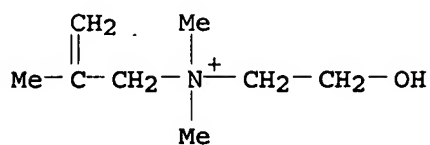
CN 2-Propen-1-aminium, N-(2-hydroxyethyl)-N,N,2-trimethyl-, chloride, polymer with N,N,N-trimethyl-2-[(2-methyl-1-oxo-2-propenyl)oxy]ethanaminium chloride (9CI) (CA INDEX NAME)

CM 1

CRN 91485-07-3

CMF C8 H18 N O . Cl

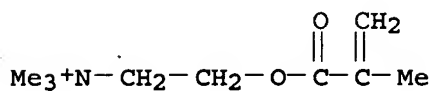


● Cl<sup>-</sup>

CM 2

CRN 5039-78-1

CMF C9 H18 N O2 . Cl

● Cl<sup>-</sup>

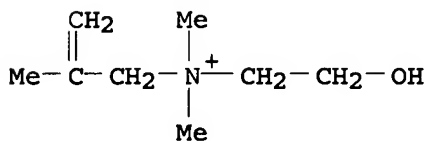
RN 762303-95-7 HCAPLUS

CN 2-Propen-1-aminium, N-(2-hydroxyethyl)-N,N,2-trimethyl-, chloride, polymer  
with N,N,N-trimethyl-2-[(1-oxo-2-propenyl)oxy]ethanaminium chloride (9CI)  
(CA INDEX NAME)

CM 1

CRN 91485-07-3

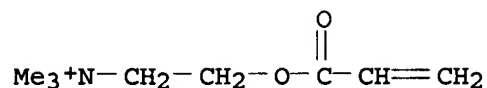
CMF C8 H18 N O . Cl

● Cl<sup>-</sup>

CM 2

CRN 44992-01-0

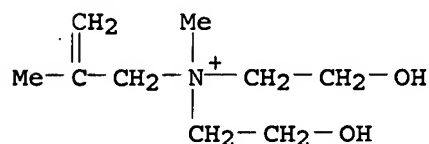
CMF C8 H16 N O2 . Cl

● Cl<sup>-</sup>

RN 762303-96-8 HCAPLUS  
 CN 2-Propen-1-aminium, N,N-bis(2-hydroxyethyl)-N,2-dimethyl-, chloride, polymer with N,N,N-trimethyl-2-[(2-methyl-1-oxo-2-propenyl)oxy]ethanaminium chloride (9CI) (CA INDEX NAME)

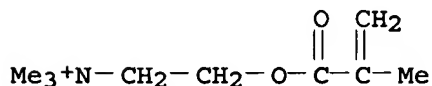
CM 1

CRN 585539-76-0  
 CMF C9 H20 N O2 . Cl

● Cl<sup>-</sup>

CM 2

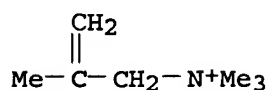
CRN 5039-78-1  
 CMF C9 H18 N O2 . Cl

● Cl<sup>-</sup>

RN 762303-97-9 HCAPLUS  
 CN 2-Propen-1-aminium, N,N,N,2-tetramethyl-, chloride, polymer with N-[3-(dimethylamino)propyl]-2-propenamide (9CI) (CA INDEX NAME)

CM 1

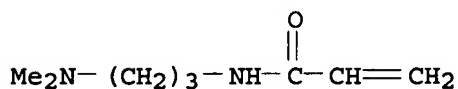
CRN 16370-13-1  
 CMF C7 H16 N . Cl

● Cl<sup>-</sup>

CM 2

CRN 3845-76-9

CMF C8 H16 N2 O



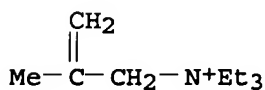
RN 762303-98-0 HCAPLUS

CN 2-Propen-1-aminium, N,N,N-triethyl-2-methyl-, polymer with  
2-(dimethylamino)ethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 60198-94-9

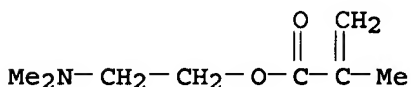
CMF C10 H22 N



CM 2

CRN 2867-47-2

CMF C8 H15 N O2



L39 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:680525 HCAPLUS

DN 141:208932

TI Flexographic printability improver, coated paper, and its  
manufacture

IN Nishi, Takayuki; Kono, Koji

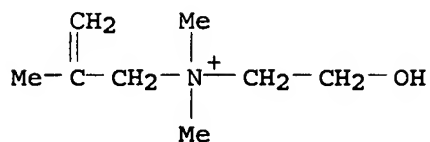
PA Seiko PMC Corporation, Japan

SO Jpn. Kokai Tokkyo Koho, 23 pp.

CODEN: JKXXAF

DT Patent  
LA Japanese  
FAN.CNT 1

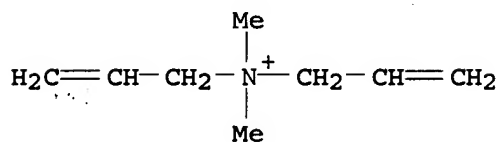
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004232158	A2	20040819	JP 2003-25186	20030131
PRAI	JP 2003-25186		20030131		
AB	The printability improver contains a cationic resin selected from an amine-epichlorohydrin cationic resin, a cationic polyacrylamide, and a cationic diallylamine resin. A cationic resin was prepared by reacting dimethylamine with epichlorohydrin in water.				
IC	ICM D21H019-20				
CC	ICS C08F220-56; C08F226-04; D21H019-24; D21H021-14				
ST	43-7 (Cellulose, Lignin, Paper, and Other Wood Products)				
IT	Section cross-reference(s): 38				
IT	cationic resin flexog printability improver coated paper; dimethylamine epichlorohydrin copolymer coated paper				
IT	Polyelectrolytes (cationic; flexog. printability improver, coated paper, and its manufacture)				
IT	Epoxy resins, uses RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (cationic; flexog. printability improver, coated paper, and its manufacture)				
IT	Paper (coated; flexog. printability improver, coated paper, and its manufacture)				
IT	Paper (printing, flexog.; flexog. printability improver, coated paper, and its manufacture)				
IT	25988-97-0P, Dimethylamine-epichlorohydrin copolymer 26062-79-3P, Diallyldimethylammonium chloride polymer 26161-33-1P, Methacryloyloxyethyltrimethylammonium chloride homopolymer 26590-05-6P, Acrylamide-diallyldimethylammonium chloride copolymer 54076-97-0P, Acryloyloxyethyltrimethylammonium chloride polymer 74153-51-8P, Acrylamide-acryloyloxyethyltrimethylammonium chloride copolymer 737777-06-9P 740871-95-8P, Acrylamide-dimethylaminopropylacrylamide-2-Propene-1-aminium N-hydroxyethyl-N,N,2-trimethyl chloride copolymer 740871-96-9P RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (flexog. printability improver, coated paper, and its manufacture)				
IT	737777-06-9P 740871-95-8P, Acrylamide-dimethylaminopropylacrylamide-2-Propene-1-aminium N-hydroxyethyl-N,N,2-trimethyl chloride copolymer 740871-96-9P RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (flexog. printability improver, coated paper, and its manufacture)				
RN	737777-06-9 HCAPLUS				
CN	2-Propen-1-aminium, N,N-dimethyl-N-2-propenyl-, chloride, polymer with N-(2-hydroxyethyl)-N,N,2-trimethyl-2-propen-1-aminium chloride and 2-propenamide (9CI) (CA INDEX NAME)				
CM	1				
CRN	91485-07-3				
CMF	C8 H18 N O . Cl				

● Cl<sup>-</sup>

CM 2

CRN 7398-69-8

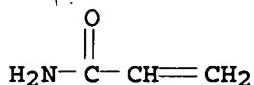
CMF C8 H16 N . Cl

● Cl<sup>-</sup>

CM 3

CRN 79-06-1

CMF C3 H5 N O



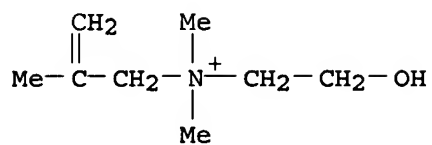
RN 740871-95-8 HCAPLUS

CN 2-Propen-1-aminium, N-(2-hydroxyethyl)-N,N,2-trimethyl-, chloride, polymer  
with N-[3-(dimethylamino)propyl]-2-propenamide and 2-propenamide (9CI)  
(CA INDEX NAME)

CM 1

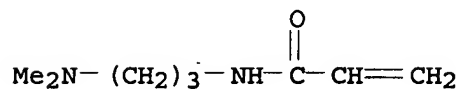
CRN 91485-07-3

CMF C8 H18 N O . Cl

● Cl<sup>-</sup>

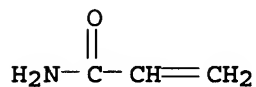
CM 2

CRN 3845-76-9  
CMF C8 H16 N2 O



CM 3

CRN 79-06-1  
CMF C3 H5 N O

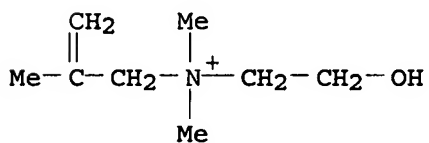


RN 740871-96-9 HCAPLUS

CN 2-Propen-1-aminium, N-(2-hydroxyethyl)-N,N,2-trimethyl-, chloride, polymer with 2-propenamide and N-2-propenyl-2-propen-1-amine (9CI) (CA INDEX NAME)

CM 1

CRN 91485-07-3  
CMF C8 H18 N O . Cl

● Cl<sup>-</sup>

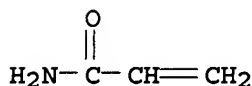
CM 2

CRN 124-02-7  
CMF C6 H11 N



CM 3

CRN 79-06-1  
CMF C3 H5 N O



L39 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:677802 HCAPLUS

DN 141:192150

TI Acrylamide polymer coating compositions, manufacture of **paper** coated with them, and **paper** manufactured

IN Nishi, Takayuki; Kono, Koji

PA Seiko Pmc Corporation, Japan

SO Jpn. Kokai Tokkyo Koho, 25 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004231901	A2	20040819	JP 2003-25187	20030131
PRAI	JP 2003-25187		20030131		

AB The compns. contain nonionic or cationic acrylamide polymers, and cationic polymers. Thus, K liner (linerboard) was coated with an aqueous solution of acrylamide-acryloyloxyethyltrimethylbenzylammonium chloride copolymer and poly(acryloyloxyethyltrimethylammonium chloride) at weight ratio of 75:25 as solids content and dried, showing high dry-pick strength and good flexog. printability.

IC ICM C09D133-26

ICS C08F220-56; C08F226-04; C09D139-00; C09D163-00; C09D201-02; D21H019-20; D21H019-24

CC 43-7 (Cellulose, Lignin, **Paper**, and Other Wood Products)

Section cross-reference(s): 42

ST cationic polyacrylamide **paper** coating flexog printability;

linerboard cationic polyacrylamide coating surface strength; coated

**paper** cationic polyacrylamide blend coating

IT Coating materials

(acrylamide polymer coating compns. for imparting surface strength and flexog. printability on **paper**)

IT Ionene polymers

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(acrylamide polymer coating compns. for imparting surface strength and flexog. printability on **paper**)

IT Polyelectrolytes

(cationic; acrylamide polymer coating compns. for imparting surface strength and flexog. printability on paper)

IT Paper

(coated; acrylamide polymer coating compns. for imparting surface strength and flexog. printability on paper)

IT Paperboard

(linerboard; acrylamide polymer coating compns. for imparting surface strength and flexog. printability on paper)

IT 25988-97-0P, Dimethylamine-epichlorohydrin copolymer 26062-79-3P,

Diallyldimethylammonium chloride homopolymer 26590-05-6P,

Acrylamide-diallyldimethylammonium chloride copolymer 54076-97-0P

74153-51-8P, Acrylamide-acryloyloxyethyl dimethylbenzylammonium chloride copolymer 737777-05-8P 737777-06-9P

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM

(Technical or engineered material use); PREP (Preparation); USES (Uses)

(acrylamide polymer coating compns. for imparting surface strength and flexog. printability on paper)

IT 91485-07-3P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(acrylamide polymer coating compns. for imparting surface strength and flexog. printability on paper)

IT 170427-76-6, PAS 92

RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)

(acrylamide polymer coating compns. for imparting surface strength and flexog. printability on paper)

IT 108-01-0, N,N-Dimethylaminoethanol 563-47-3, 1-Chloro-2-methyl-2-propene.

RL: RCT (Reactant); RACT (Reactant or reagent)

(acrylamide polymer coating compns. for imparting surface strength and flexog. printability on paper)

IT 737777-05-8P 737777-06-9P

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM

(Technical or engineered material use); PREP (Preparation); USES (Uses)

(acrylamide polymer coating compns. for imparting surface strength and flexog. printability on paper)

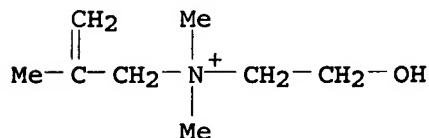
RN 737777-05-8 HCAPLUS

CN 2-Propen-1-aminium, N-(2-hydroxyethyl)-N,N,2-trimethyl-, chloride, polymer with 2-propenamide (9CI) (CA INDEX NAME)

CM 1

CRN 91485-07-3

CMF C8 H18 N O . Cl

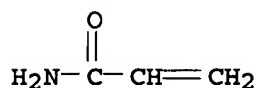


● Cl<sup>-</sup>

CM 2



CRN 79-06-1  
CMF C3 H5 N O

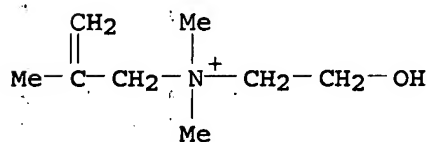


RN 737777-06-9 HCAPLUS

CN 2-Propen-1-aminium, N,N-dimethyl-N-2-propenyl-, chloride, polymer with  
N-(2-hydroxyethyl)-N,N,2-trimethyl-2-propen-1-aminium chloride and  
2-propenamide (9CI) (CA INDEX NAME)

CM 1

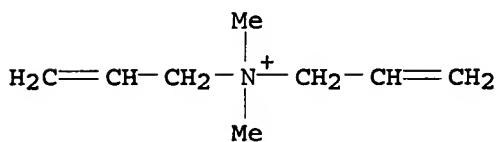
CRN 91485-07-3  
CMF C8 H18 N O . Cl



● Cl<sup>-</sup>

CM 2

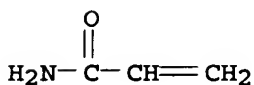
CRN 7398-69-8  
CMF C8 H16 N . Cl



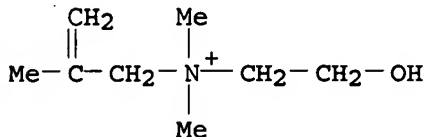
● Cl<sup>-</sup>

CM 3

CRN 79-06-1  
CMF C3 H5 N O



IT 91485-07-3P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (acrylamide polymer coating compns. for imparting surface strength and  
 flexog. printability on paper)  
 RN 91485-07-3 HCAPLUS  
 CN 2-Propen-1-aminium, N-(2-hydroxyethyl)-N,N,2-trimethyl-, chloride (9CI)  
 (CA INDEX NAME)



● Cl<sup>-</sup>

L39 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:200593 HCAPLUS

DN 140:237401

TI Jet-printing paper with good whiteness, less discoloration,  
 water resistance, and printability and coatings and binders therefor

IN Kiyosada, Shunji; Iwata, Satoru

PA Seiko PMC Corporation, Japan

SO Jpn. Kokai Tokkyo Koho, 33 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN: CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004076169	A2	20040311	JP 2002-234211	20020809
PRAI	JP 2002-234211		20020809		

AB The binders contain (A) cationic polymers prepared by polymerization of (a) CH<sub>2</sub>:CR<sub>1</sub>R<sub>2</sub>N+R<sub>3</sub>R<sub>4</sub>R<sub>5</sub>X- [R<sub>1</sub> = H, C1-4 alkyl; R<sub>2</sub> = C1-4 alkylene; R<sub>3</sub>-R<sub>5</sub> = H, (substituted) C1-22 alk(en)yl or C1-100 alkylene oxide; ≥1 of R<sub>3</sub>-R<sub>5</sub> = C8-22 alk(en)yl; X- = (in)organic acid anion], (b) vinyl monomers with solubility ≥0 and <10 g in 100 g water at 20°, and optionally (c) cationic vinyl monomers other than A. Other cationic resins (e.g., dialkylamine epihalohydrin resins, quaternized polyamide-polyamines) may be included in the binders. Coatings comprising the above binders, inorg. fillers, and optionally water-soluble polymers and jet-printing paper coated therewith are also claimed. Thus, N-dodecyl-N,N,2-trimethyl-2-propene-1-aminium chloride (prepared by reaction of 1-chloro-2-methylpropene and N,N-dimethyldodecylamine) was polymerized with Me methacrylate and mixed with Finesil X 37B (amorphous silica) to give a composition, which was applied on paper and dried to give jet-printing paper showing ISO whiteness 81.9 (JIS P 8148), no yellowing by UV, and good appearance of printed letter.

IC ICM D21H019-58

ICS B41M005-00; C08F226-00; C08G065-26; C08G069-48; D21H019-40;  
 D21H027-00; B41J002-01

CC 43-7 (Cellulose, Lignin, Paper, and Other Wood Products)  
 Section cross-reference(s): 74

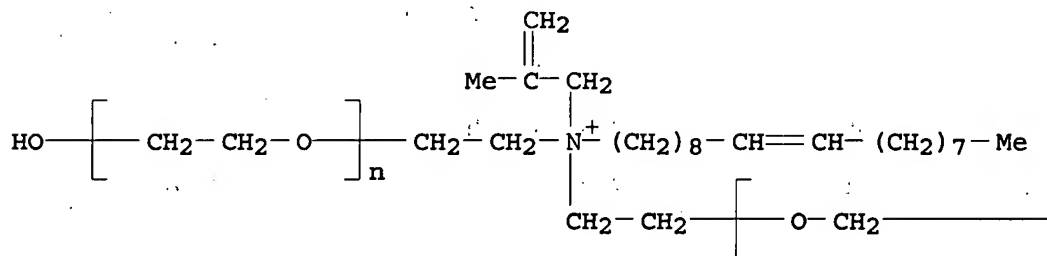
- ST jet printing paper coating cationic binder; dodecylmethylpropene aminium chloride methyl methacrylate copolymer binder paper coating; printing paper water resistant coating whiteness less discoloration; allyl ammonium salt polymer silica paper coating; cationic polyelectrolyte jet printing paper coating discoloration free whiteness
- IT Polyoxyalkylenes, reactions  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(2-methyl-2-propenylammonium chloride-terminated, macromonomers; discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- IT Polyoxyalkylenes, uses  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(acrylic, graft; discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- IT Polyelectrolytes  
(cationic; discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- IT Paper  
(coated; discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- IT Coating materials  
(discoloration-resistant; discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- IT Ink-jet recording sheets  
(paper; discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- IT Polyamines  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyamide-, quaternary ammonium salt-containing; discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- IT Polyethers, uses  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyamine-, cationic; discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- IT Polyamides, uses  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyamine-, quaternary ammonium salt-containing; discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- IT Polyamines  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyether-, cationic; discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- IT Paper

- (printing, ink-jet; discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- IT Coating materials  
(water-resistant; discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- IT Polymers, uses  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(water-soluble; discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- IT 7631-86-9, Silica, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(amorphous, Finesil X 37B, Carplex BS 312AM, inorg. fillers; discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- IT 667398-23-4P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(cationic macromonomers; discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- IT 33735-42-1P 62266-68-6P 585539-79-3P  
667398-19-8P 667398-20-1P 667398-21-2P  
667398-22-3P 667398-26-7P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(cationic monomers; discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- IT 667398-30-3P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(cationic; discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- IT 667398-25-6P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- IT 106-89-8DP, reaction products with adipic acid-diethylenetriamine copolymer 25085-20-5DP, Adipic acid-diethylenetriamine copolymer, reaction products with epichlorohydrin 52722-38-0P, Ammonia-dimethylamine-epichlorohydrin copolymer 667398-24-5P  
667398-27-8P 667398-28-9P 667398-29-0P 667398-31-4P  
667398-32-5P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- IT 9002-89-5, PVA 117  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(discoloration-free water-resistant coatings containing cationic polymeric

binders useful for jet-printing paper with good whiteness and printability)

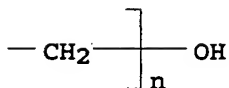
- IT 107-05-1, 1-Chloro-2-propene 112-18-5, N,N-Dimethyldodecylamine  
 124-28-7, N,N-Dimethyloctadecylamine 513-37-1, 1-Chloro-2-methylpropene  
 2915-90-4, N-Methyldidodecylamine 3007-31-6, Didodecylamine 13127-82-7  
 14727-68-5, N,N-Dimethyloleyleamine 26635-93-8, Ethoxylated oleylamine  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (in preparation of cationic monomers; discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- IT 667398-23-4P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (cationic macromonomers; discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)
- RN 667398-23-4 HCAPLUS  
 CN Poly(oxy-1,2-ethanediyl),  $\alpha, \alpha'$ -[[ (2-methyl-2-propenyl) - (9Z) - 9-octadecenyliminio] di-2,1-ethanediyl] bis[ $\omega$ -hydroxy-, chloride (9CI)  
 (CA INDEX NAME)]

PAGE 1-A



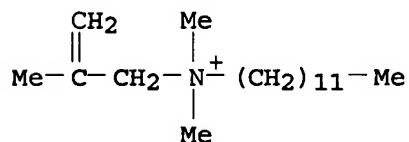
● Cl -

PAGE 1-B

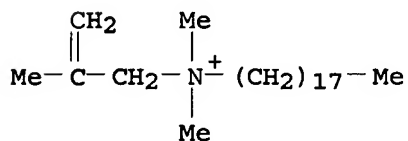


- IT 33735-42-1P 585539-79-3P 667398-19-8P  
 667398-20-1P 667398-22-3P 667398-26-7P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (cationic monomers; discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)

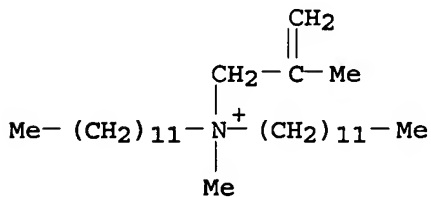
RN 33735-42-1 HCAPLUS

CN 1-Dodecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride (9CI)  
(CA INDEX NAME)● Cl<sup>-</sup>

RN 585539-79-3 HCAPLUS

CN 1-Octadecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride (9CI)  
(CA INDEX NAME)● Cl<sup>-</sup>

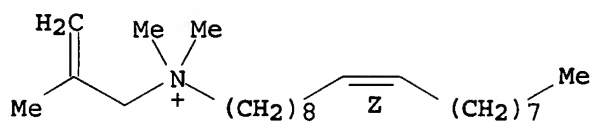
RN 667398-19-8 HCAPLUS

CN 1-Dodecanaminium, N-dodecyl-N-methyl-N-(2-methyl-2-propenyl)-, chloride  
(9CI) (CA INDEX NAME)● Cl<sup>-</sup>

RN 667398-20-1 HCAPLUS

CN 9-Octadecen-1-aminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride,  
(9Z) - (9CI) (CA INDEX NAME)

Double bond geometry as shown.

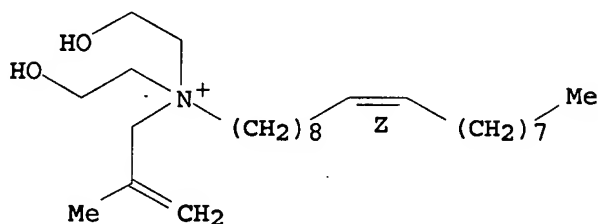


● Cl<sup>-</sup>

RN 667398-22-3 HCAPLUS

CN 9-Octadecen-1-aminium, N,N-bis(2-hydroxyethyl)-N-(2-methyl-2-propenyl)-, chloride, (9Z)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



● Cl<sup>-</sup>

RN 667398-26-7 HCAPLUS

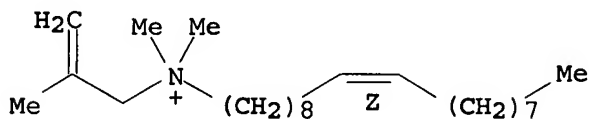
CN 9-Octadecen-1-aminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride, (9Z)-, polymer with butyl 2-propenoate, methyl 2-methyl-2-propenoate and N,N,N-trimethyl-3-[(1-oxo-2-propenyl)amino]-1-propanaminium chloride (9CI) (CA INDEX NAME)

CM 1

CRN 667398-20-1

CMF C24 H48 N . Cl

Double bond geometry as shown.

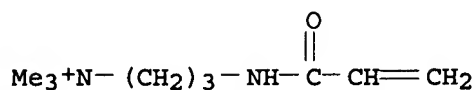


● Cl<sup>-</sup>

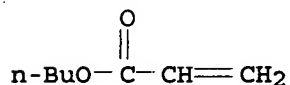
CM 2

CRN 45021-77-0

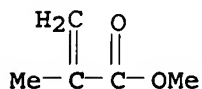
CMF C9 H19 N2 O . Cl

● Cl<sup>-</sup>

CM 3

CRN 141-32-2  
CMF C7 H12 O2

CM 4

CRN 80-62-6  
CMF C5 H8 O2

IT 667398-25-6P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)

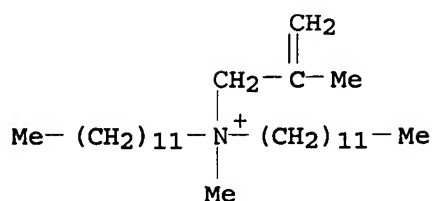
RN 667398-25-6 HCAPLUS

CN 1-Dodecanaminium, N-dodecyl-N-methyl-N-(2-methyl-2-propenyl)-, chloride, polymer with methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

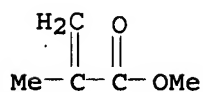
CRN 667398-19-8  
CMF C29 H60 N . Cl



● Cl<sup>-</sup>

CM 2

CRN 80-62-6  
CMF C5 H8 O2



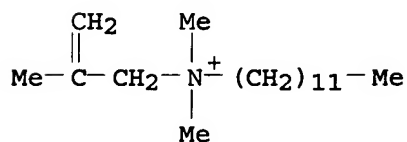
IT 667398-24-5P 667398-28-9P 667398-29-0P  
667398-32-5P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(discoloration-free water-resistant coatings containing cationic polymeric binders useful for jet-printing paper with good whiteness and printability)

RN 667398-24-5 HCAPLUS  
CN 1-Dodecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride, polymer with methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

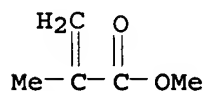
CM 1

CRN 33735-42-1  
CMF C18 H38 N . Cl

● Cl<sup>-</sup>

CM 2

CRN 80-62-6  
CMF C5 H8 O2



RN 667398-28-9 HCAPLUS

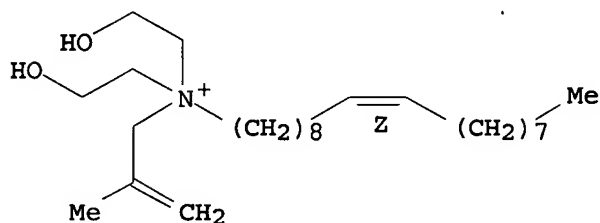
CN Benzenemethanaminium, N,N-dimethyl-N-[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]-, chloride, polymer with (9Z)-N,N-bis(2-hydroxyethyl)-N-(2-methyl-2-propenyl)-9-octadecen-1-aminium chloride, butyl 2-propenoate and ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 667398-22-3

CMF C26 H52 N O2 . Cl

Double bond geometry as shown.

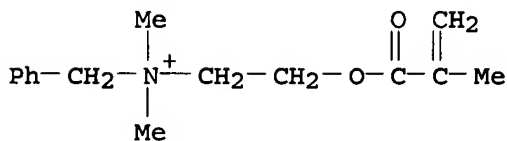


● Cl<sup>-</sup>

CM 2

CRN 46917-07-1

CMF C15 H22 N O2 . Cl

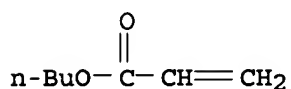


● Cl<sup>-</sup>

CM 3

CRN 141-32-2

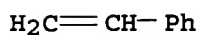
CMF C7 H12 O2



CM 4

CRN 100-42-5

CMF C8 H8



RN 667398-29-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-(dimethylamino)ethyl ester, polymer with methyl 2-methyl-2-propenoate and  $\alpha,\alpha'$ -[[(2-methyl-2-propenyl)-(9Z)-9-octadecenyliminio]di-2,1-ethanediyl]bis[ $\omega$ -hydroxypoly(oxy-1,2-ethanediyl)] chloride, graft (9CI) (CA INDEX NAME)

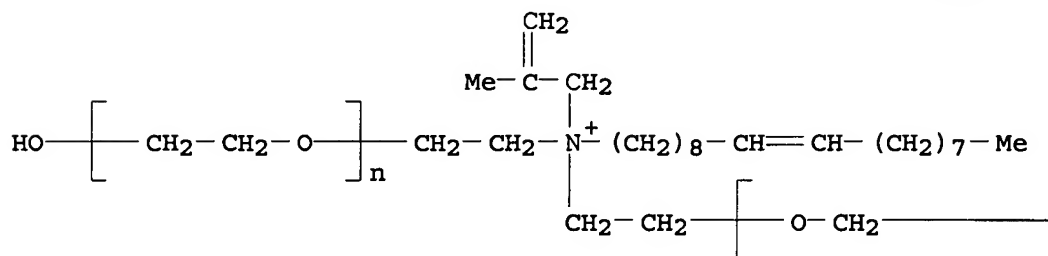
CM 1

CRN 667398-23-4

CMF (C2 H4 O)n (C2 H4 O)n C26 H52 N O2 . Cl

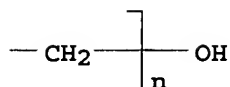
CCI PMS

PAGE 1-A



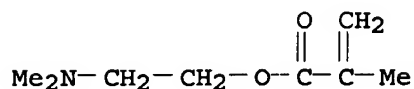
- $\text{Cl}^-$

PAGE 1-B



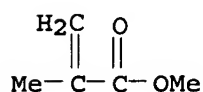
CM 2

CRN 2867-47-2  
CMF C8 H15 N O2



CM 3

CRN 80-62-6  
CMF C5 H8 O2

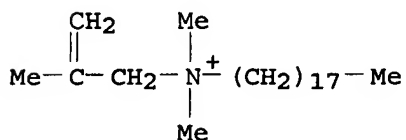


RN 667398-32-5 HCAPLUS

CN 1-Octadecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride,  
polymer with 2-(dimethylamino)ethyl 2-methyl-2-propenoate and methyl  
2-methyl-2-propenoate (9CI) (CA INDEX NAME)

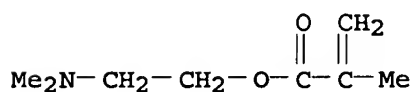
CM 1

CRN 585539-79-3  
CMF C24 H50 N . Cl

● Cl<sup>-</sup>

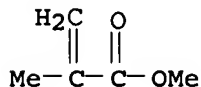
CM 2

CRN 2867-47-2  
CMF C8 H15 N O2



CM 3

CRN 80-62-6  
CMF C5 H8 O2



L39 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:868158 HCAPLUS

DN 139:366505

TI Quaternary ammonium polymer dispersing agents, aqueous dispersion containing them, and paper using them

IN Ito, Kenichi; Hara, Tetsuya; Oishi, Kei; Sone, Shigehiko

PA Seiko PMC Corporation, Japan

SO Jpn. Kokai Tokkyo Koho, 21 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003313251	A2	20031106	JP 2002-154763	20020421
PRAI	JP 2002-154763		20020421		

AB The agents, useful for sizes for paper, are manufactured by polymerization of CH<sub>2</sub>:CMeR<sub>1</sub>N+R<sub>2</sub>R<sub>3</sub>R<sub>4</sub>-X- [R<sub>1</sub> = C1-4 alkylene; R<sub>2</sub>-R<sub>4</sub> = H, (un)substituted C≤30 alkyl; X- = acid anion], (meth)acrylamide, and optional ionic monomers and/or hydrophobic monomers. Thus, paper was manufactured using a size containing maleated rosin 40, rosin ester 60, and methallyldodecyldimethylammonium chloride-acrylamide copolymer 6 parts. Stoeckigt sizing degree of the paper was 14.6 s.

IC ICM C08F220-56

ICS C08F226-02; D21H017-15; D21H017-17; D21H017-45; D21H017-62; D21H021-16

CC 43-7 (Cellulose, Lignin, Paper, and Other Wood Products)

Section cross-reference(s): 37

ST quaternary ammonium polymer dispersant paper size; acrylamide

quaternary ammonium polymer dispersant size

IT Resin acids

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(esters with glycerol, sizes; manufacture of quaternary ammonium polymers as dispersing agents for sizes for paper manufacture)

IT Rosin

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(fumarated, sizes; manufacture of quaternary ammonium polymers as dispersing agents for sizes for paper manufacture)

IT Construction materials

(gypsum boards, paper for; manufacture of quaternary ammonium polymers as dispersing agents for sizes for paper manufacture)

IT Rosin

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(maleated, sizes; manufacture of quaternary ammonium polymers as dispersing agents for sizes for paper manufacture)

IT Dispersing agents

**Paper**

Photographic paper

Sizes (agents)

(manufacture of quaternary ammonium polymers as dispersing agents for sizes for paper manufacture)

IT **Paper**

(packaging; manufacture of quaternary ammonium polymers as dispersing agents for sizes for paper manufacture)

IT Packaging materials

(paper; manufacture of quaternary ammonium polymers as dispersing agents for sizes for paper manufacture)

IT **Paper**

(recycled; manufacture of quaternary ammonium polymers as dispersing agents for sizes for paper manufacture)

IT 16370-13-1P 33735-42-1P 67758-91-2P

91485-07-3P 585539-79-3P 620609-41-8P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(manufacture of quaternary ammonium polymers as dispersing agents for sizes for paper manufacture)

IT 620609-42-9P 620609-43-0P 620609-44-1P,

Acrylamide-cyclohexyl methacrylate-itaconic acid-methallyltrimethylammonium chloride-sodium styrenesulfonate copolymer

620609-45-2P, Acrylamide-N,N-dimethylaminopropylacrylamide-dodecylmethallyldimethylammonium chloride-methacrylic acid-sodium methallylsulfonate copolymer 620609-46-3P 620609-47-4P

620609-48-5P 620609-49-6P 620609-50-9P

620609-51-0P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(manufacture of quaternary ammonium polymers as dispersing agents for sizes for paper manufacture)

IT 75-50-3, Trimethylamine, reactions 103-83-3, N,N-Dimethylbenzylamine

108-01-0, N,N-Dimethylaminoethanol 112-18-5, N,N-Dimethyldodecylamine

124-28-7, N,N-Dimethyloctadecylamine 563-47-3, 1-Chloro-2-methyl-2-

propene 7378-99-6, N,N-Dimethyloctylamine

RL: RCT (Reactant); RACT (Reactant or reagent)

(manufacture of quaternary ammonium polymers as dispersing agents for sizes for paper manufacture)

IT 471-34-1, TP 121S, uses

RL: MOA (Modifier or additive use); USES (Uses)

(paper containing; manufacture of quaternary ammonium polymers as dispersing agents for sizes for paper manufacture)

IT 9008-63-3, Formaldehyde-sodium naphthalenesulfonate copolymer

28777-98-2, Octadecenylsuccinic anhydride 32072-96-1,

Hexadecenylsuccinic anhydride 75240-80-1, Heptadecylketene dimer

RL: TEM (Technical or engineered material use); USES (Uses)

(sizes; manufacture of quaternary ammonium polymers as dispersing agents for sizes for paper manufacture)

IT 16370-13-1P 33735-42-1P 67758-91-2P

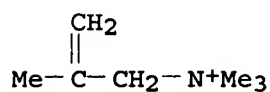
91485-07-3P 585539-79-3P 620609-41-8P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

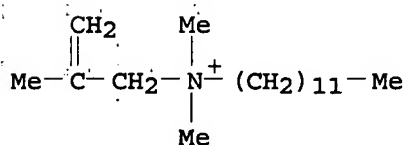
(manufacture of quaternary ammonium polymers as dispersing agents for sizes for paper manufacture)

RN 16370-13-1 HCAPLUS

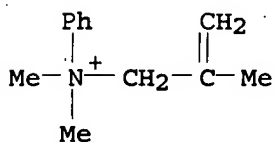
CN 2-Propen-1-aminium, N,N,N,2-tetramethyl-, chloride (9CI) (CA INDEX NAME)

● Cl<sup>-</sup>

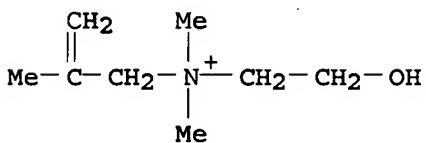
RN 33735-42-1 HCAPLUS

CN 1-Dodecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride (9CI)  
(CA INDEX NAME)● Cl<sup>-</sup>

RN 67758-91-2 HCAPLUS

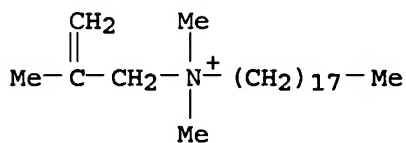
CN Benzenaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride (9CI) (CA  
INDEX NAME)● Cl<sup>-</sup>

RN 91485-07-3 HCAPLUS

CN 2-Propen-1-aminium, N-(2-hydroxyethyl)-N,N,2-trimethyl-, chloride (9CI)  
(CA INDEX NAME)● Cl<sup>-</sup>

RN 585539-79-3 HCAPLUS

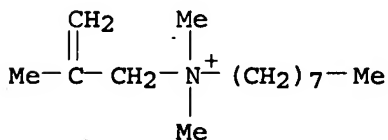
CN 1-Octadecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride (9CI)  
(CA INDEX NAME)



● Cl<sup>-</sup>

RN 620609-41-8 HCAPLUS

CN 1-Octanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride (9CI) (CA INDEX NAME)



● Cl<sup>-</sup>

IT 620609-42-9P 620609-43-0P 620609-44-1P,

Acrylamide-cyclohexyl methacrylate-itaconic acid-methallyltrimethylammonium chloride-sodium styrenesulfonate copolymer

620609-45-2P, Acrylamide-N,N-dimethylaminopropylacrylamide-dodecylmethallyldimethylammonium chloride-methacrylic acid-sodium methallylsulfonate copolymer 620609-46-3P 620609-47-4P

620609-48-5P 620609-49-6P 620609-50-9P

620609-51-0P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(manufacture of quaternary ammonium polymers as dispersing agents for sizes for paper manufacture)

RN 620609-42-9 HCAPLUS

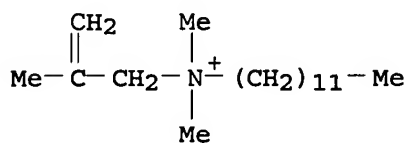
CN 1-Dodecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride, polymer with 2-propenamide (9CI) (CA INDEX NAME)

CM 1

CRN 33735-42-1

CMF C18 H38 N . Cl

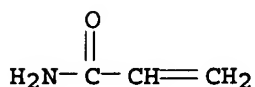


● Cl<sup>-</sup>

CM 2

CRN 79-06-1

CMF C3 H5 N O



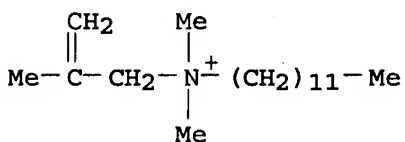
RN 620609-43-0 HCAPLUS

CN 1-Dodecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride, polymer  
with 2-methylpropyl 2-methyl-2-propenoate and 2-propenamide (9CI) (CA  
INDEX NAME)

CM 1

CRN 33735-42-1

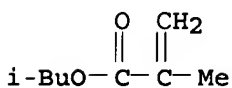
CMF C18 H38 N . Cl

● Cl<sup>-</sup>

CM 2

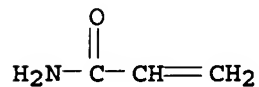
CRN 97-86-9

CMF C8 H14 O2



CM 3

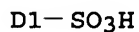
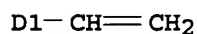
CRN 79-06-1  
CMF C3 H5 N O



RN 620609-44-1 HCAPLUS  
CN 2-Propen-1-aminium, N,N,N,2-tetramethyl-, chloride, polymer with  
cyclohexyl 2-methyl-2-propenoate, methylenebutanedioic acid, 2-propenamide  
and sodium ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

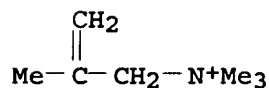
CM 1

CRN 27457-28-9  
CMF C8 H8 O3 S . Na  
CCI IDS



CM 2

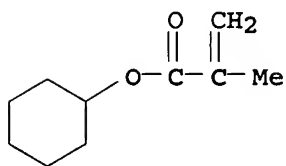
CRN 16370-13-1  
CMF C7 H16 N . Cl



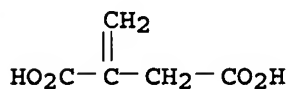
CM 3

CRN 101-43-9

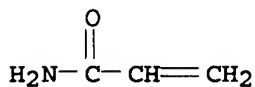
CMF C10 H16 O2



CM 4

CRN 97-65-4  
CMF C5 H6 O4

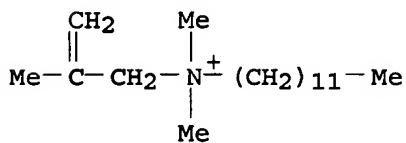
CM 5

CRN 79-06-1  
CMF C3 H5 N O

RN 620609-45-2 HCAPLUS

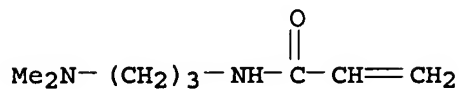
CN 1-Dodecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride, polymer with N-[3-(dimethylamino)propyl]-2-propenamide, 2-methyl-2-propenoic acid, 2-propenamide and sodium 2-methyl-2-propene-1-sulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 33735-42-1  
CMF C18 H38 N . Cl● Cl<sup>-</sup>

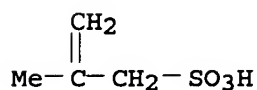
CM 2

CRN 3845-76-9  
CMF C8 H16 N2 O



CM 3

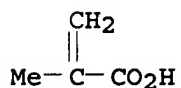
CRN 1561-92-8  
CMF C4 H8 O3 S . Na



● Na

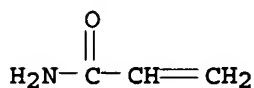
CM 4

CRN 79-41-4  
CMF C4 H6 O2



CM 5

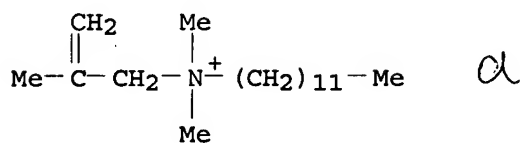
CRN 79-06-1  
CMF C3 H5 N O



RN 620609-46-3 HCAPLUS  
CN 1-Dodecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride, polymer with N-[3-(dimethylamino)propyl]-2-propenamide, 2-propenamide and sodium 2-methyl-2-propene-1-sulfonate (9CI) (CA INDEX NAME)

CM 1

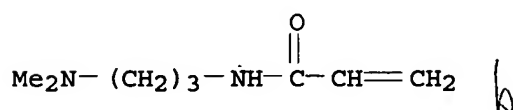
CRN 33735-42-1  
CMF C18 H38 N . Cl

● Cl<sup>-</sup>

CM 2

CRN 3845-76-9

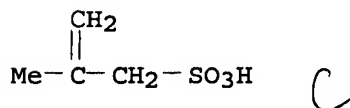
CMF C8 H16 N2 O



CM 3

CRN 1561-92-8

CMF C4 H8 O3 S . Na

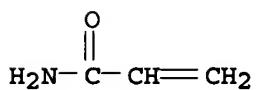


● Na

CM 4

CRN 79-06-1

CMF C3 H5 N O



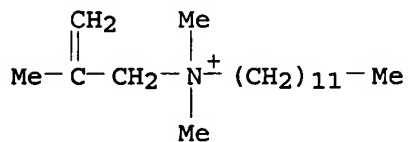
RN 620609-47-4 HCAPLUS

CN 1-Dodecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride, polymer  
with 2-methyl-2-propenoic acid, 2-propenamide and sodium  
2-methyl-2-propene-1-sulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 33735-42-1

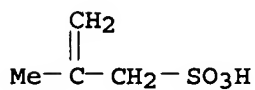
CMF C18 H38 N . Cl

● Cl<sup>-</sup>

CM 2

CRN 1561-92-8

CMF C4 H8 O3 S . Na

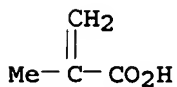


● Na

CM 3

CRN 79-41-4

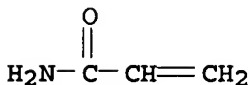
CMF C4 H6 O2



CM 4

CRN 79-06-1

CMF C3 H5 N O

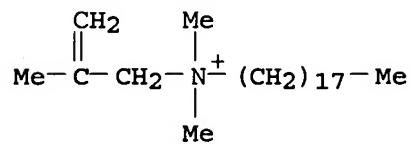


RN 620609-48-5 HCAPLUS

CN 1-Octadecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride,  
 polymer with N-[3-(dimethylamino)propyl]-2-propenamide,  
 2-methyl-2-propenoic acid, 2-propenamide and sodium 2-methyl-2-propene-1-  
 sulfonate (9CI) (CA INDEX NAME)

CM 1

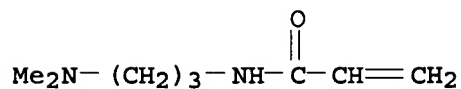
CRN 585539-79-3  
CMF C24 H50 N . Cl



● Cl<sup>-</sup>

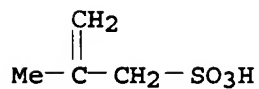
CM 2

CRN 3845-76-9  
CMF C8 H16 N2 O



CM 3

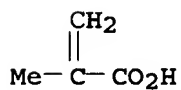
CRN 1561-92-8  
CMF C4 H8 O3 S . Na



● Na

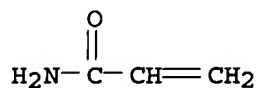
CM 4

CRN 79-41-4  
CMF C4 H6 O2



CM 5

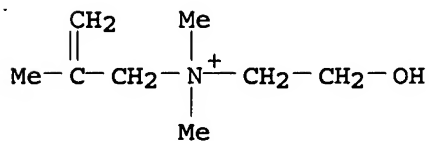
CRN 79-06-1  
CMF C3 H5 N O



RN 620609-49-6 HCAPLUS  
CN 2-Propen-1-aminium, N-(2-hydroxyethyl)-N,N,2-trimethyl-, chloride, polymer with N-[3-(dimethylamino)propyl]-2-propenamide, 2-methyl-2-propenoic acid, 2-propenamide and sodium 2-methyl-2-propene-1-sulfonate (9CI) (CA INDEX NAME)

CM 1

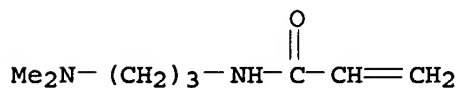
CRN 91485-07-3  
CMF C8 H18 N O . Cl



● Cl<sup>-</sup>

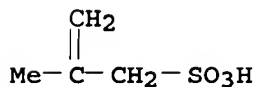
CM 2

CRN 3845-76-9  
CMF C8 H16 N2 O



CM 3

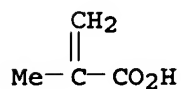
CRN 1561-92-8  
CMF C4 H8 O3 S . Na



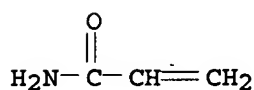
● Na



CM 4

CRN 79-41-4  
CMF C4 H6 O2

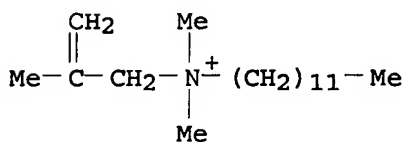
CM 5

CRN 79-06-1  
CMF C3 H5 N O

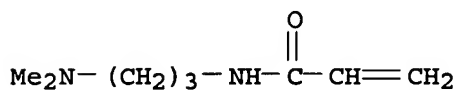
RN 620609-50-9 HCAPLUS

CN 1-Dodecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride, polymer with N-[3-(dimethylamino)propyl]-2-propenamide, 2-propenamide, 2-propenoic acid and sodium 2-methyl-2-propene-1-sulfonate (9CI) (CA INDEX NAME)

CM 1

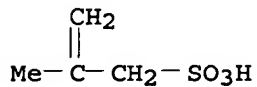
CRN 33735-42-1  
CMF C18 H38 N . Cl● Cl<sup>-</sup>

CM 2

CRN 3845-76-9  
CMF C8 H16 N2 O

CM 3

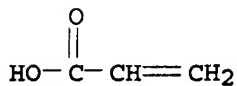
CRN 1561-92-8  
CMF C4 H8 O3 S . Na



● Na

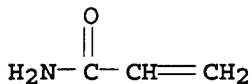
CM 4

CRN 79-10-7  
CMF C3 H4 O2



CM 5

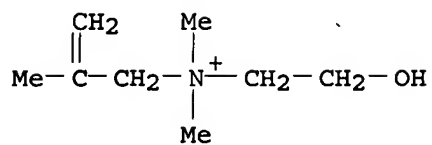
CRN 79-06-1  
CMF C3 H5 N O



RN 620609-51-0 HCAPLUS  
CN 1-Dodecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride, polymer with N-[3-(dimethylamino)propyl]-2-propenamide, N-(2-hydroxyethyl)-N,N,2-trimethyl-2-propen-1-aminium chloride, 2-methyl-2-propenoic acid, 2-propenamide and sodium 2-methyl-2-propene-1-sulfonate (9CI) (CA INDEX NAME)

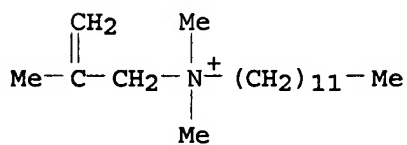
CM 1

CRN 91485-07-3  
CMF C8 H18 N O . Cl

● Cl<sup>-</sup>

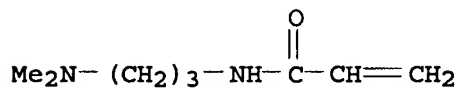
CM 2

CRN 33735-42-1  
 CMF C18 H38 N . Cl

● Cl<sup>-</sup>

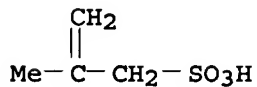
CM 3

CRN 3845-76-9  
 CMF C8 H16 N2 O



CM 4

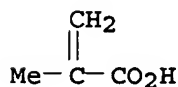
CRN 1561-92-8  
 CMF C4 H8 O3 S . Na



● Na

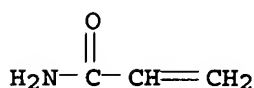
CM 5

CRN 79-41-4  
CMF C4 H6 O2



CM 6

CRN 79-06-1  
CMF C3 H5 N O



L39 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:671123 HCAPLUS

DN 139:198975

TI Paper of high bursting strength, sizes and (meth)acrylamide polymers therefor, and preparation thereof

IN Kiyosada, Shunji; Endo, Akira; Iwata, Satoru; Ogawa, Masatomi

PA Japan PMC Corporation, Japan

SO Jpn. Kokai Tokkyo Koho, 28 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003238631	A2	20030827	JP 2002-47116	20020222
	CA 2477226	AA	20030828	CA 2003-2477226	20030221
	WO 2003070796	A1	20030828	WO 2003-JP1918	20030221
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	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW:				
	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	EP 1486515	A1	20041215	EP 2003-706991	20030221
	R:				
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	US 2005272889	A1	20051208	US 2005-505346	20050720
PRAI	JP 2002-47116	A	20020222		
	WO 2003-JP1918	W	20030221		

AB The polymers comprise (A) MeC:CH<sub>2</sub>R<sub>1</sub>N+R<sub>2</sub>R<sub>3</sub>R<sub>4</sub>X- [R<sub>1</sub> = C<sub>1</sub>-4 alkylene; R<sub>2</sub>-R<sub>4</sub> = H, C<sub>≤</sub>22 alkyl excluding the case where 2 or 3 of them are H; X- = (in)organic acid anion], (B) (meth)acrylamide, and (C) ionic monomers excluding A. In the process, ≥1 of the monomer A-C are polymerized in

the first stage of polymerization and remainders of the monomers are added to the reactors and then polymerized. Thus, 66.3:2.0:1.5:0.20 (mol) acrylamide (I)/dimethylaminoethyl methacrylate/itaconic acid (II)/2-propen-1-aminium N,N,N,2-tetra-Me chloride (III) was polymerized in the presence of ammonium persulfate and further polymerized in the presence of 27.95:1.5:0.5:0.05 (mol) I/acryloyloxyethyl dimethylbenzyl ammonium chloride/II/III to give a polymer. Paper hand-made from corrugated wastepaper by use of a size containing the polymer showed internal bonding strength 289 mJ, ash 7.41%, and Stoeckigt sizing degree 120 s.

IC ICM C08F220-56

ICS C08F002-00; C08F226-02; C08F228-02; D21H017-45; D21H019-20; D21H021-18; D21H021-10; D21H021-16

CC 43-7 (Cellulose, Lignin, Paper, and Other Wood Products)

Section cross-reference(s): 38

ST paper size acrylamide polymer burst tear strength; propenaminium acrylamide polymer paper strengthening agent; internal bonding strength paper size methacrylamide polymer

IT Paper

Sizes (agents)

(sizes containing (meth)acrylamide copolymers and imparting paper with high bursting and tear strength)

IT 16370-13-1P, 2-Propen-1-aminium N,N,N,2-tetramethyl chloride

62721-66-8P 91485-07-3P 94267-60-4P

101258-75-7P 122412-33-3P, Benzenemethanaminium

N,N-dimethyl-N-(2-methyl-2-propenyl) chloride 123941-84-4P

585539-74-8P 585539-76-0P 585539-79-3P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(monomers; sizes containing (meth)acrylamide copolymers and imparting paper with high bursting and tear strength)

IT 585539-63-5P 585539-64-6P 585539-66-8P 585539-68-0P

585539-70-4P 585539-72-6P 585539-73-7P

585539-75-9P 585539-77-1P 585539-78-2P

585539-80-6P 585539-81-7P 585539-82-8P

585539-83-9P 585540-02-9P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(sizes containing (meth)acrylamide copolymers and imparting paper with high bursting and tear strength)

IT 57-13-6, Urea, uses

RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(sizes containing (meth)acrylamide copolymers and imparting paper with high bursting and tear strength)

IT 75-50-3, Trimethylamine, reactions 102-82-9, Tributylamine 103-83-3,

N,N-Dimethylbenzylamine 105-59-9 108-01-0, N,N-Dimethylaminoethanol

109-02-4, N-Methylmorpholine 109-83-1, 2-Hydroxy-N-methylethylamine

109-89-7, Diethylamine, reactions 121-44-8, Triethylamine, reactions

124-28-7, N,N-Dimethyloctadecylamine 563-47-3, 1-Chloro-2-methyl-2-

propene

RL: RCT (Reactant); RACT (Reactant or reagent)

(sizes containing (meth)acrylamide copolymers and imparting paper with high bursting and tear strength)

IT 16370-13-1P, 2-Propen-1-aminium N,N,N,2-tetramethyl chloride

62721-66-8P 91485-07-3P 94267-60-4P

122412-33-3P, Benzenemethanaminium N,N-dimethyl-N-(2-methyl-2-

propenyl) chloride 585539-76-0P 585539-79-3P

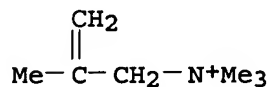
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(monomers; sizes containing (meth)acrylamide copolymers and imparting

paper with high bursting and tear strength)

RN 16370-13-1 HCAPLUS

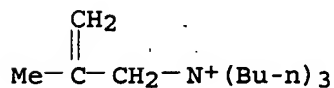
CN 2-Propen-1-aminium, N,N,N,2-tetramethyl-, chloride (9CI) (CA INDEX NAME)



● Cl<sup>-</sup>

RN 62721-66-8 HCAPLUS

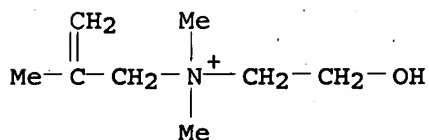
CN 1-Butanaminium, N,N-dibutyl-N-(2-methyl-2-propenyl)-, chloride (9CI) (CA INDEX NAME)



● Cl<sup>-</sup>

RN 91485-07-3 HCAPLUS

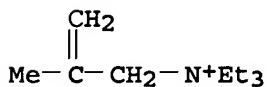
CN 2-Propen-1-aminium, N-(2-hydroxyethyl)-N,N,2-trimethyl-, chloride (9CI) (CA INDEX NAME)



● Cl<sup>-</sup>

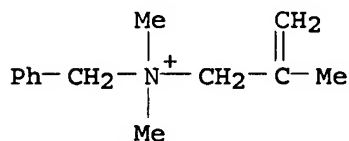
RN 94267-60-4 HCAPLUS

CN 2-Propen-1-aminium, N,N,N-triethyl-2-methyl-, chloride (9CI) (CA INDEX NAME)



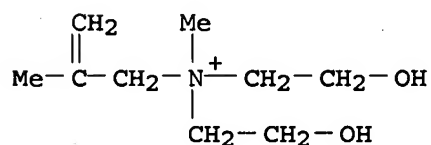
● Cl<sup>-</sup>

RN 122412-33-3 HCAPLUS  
 CN Benzenemethanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride (9CI) (CA INDEX NAME)



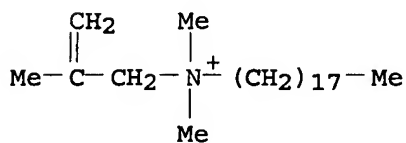
● Cl<sup>-</sup>

RN 585539-76-0 HCAPLUS  
 CN 2-Propen-1-aminium, N,N-bis(2-hydroxyethyl)-N,2-dimethyl-, chloride (9CI) (CA INDEX NAME)



● Cl<sup>-</sup>

RN 585539-79-3 HCAPLUS  
 CN 1-Octadecanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride (9CI) (CA INDEX NAME)



● Cl<sup>-</sup>

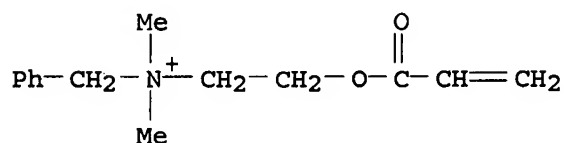
IT 585539-63-5P 585539-64-6P 585539-70-4P  
 585539-72-6P 585539-73-7P 585539-77-1P  
 585539-78-2P 585539-80-6P 585539-81-7P  
 585539-82-8P 585539-83-9P 585540-02-9P  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (sizes containing (meth)acrylamide copolymers and imparting paper with high bursting and tear strength)  
 RN 585539-63-5 HCAPLUS  
 CN Benzenemethanaminium, N,N-dimethyl-N-[2-[(1-oxo-2-propenyl)oxy]ethyl]-,

chloride, polymer with 2-(dimethylamino)ethyl 2-methyl-2-propenoate, methylenebutanedioic acid, 2-propenamide and N,N,N,2-tetramethyl-2-propen-1-aminium chloride (9CI) (CA INDEX NAME)

CM 1

CRN 46830-22-2

CMF C14 H20 N O2 . Cl

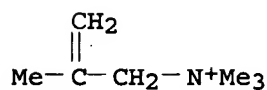


● Cl<sup>-</sup>

CM 2

CRN 16370-13-1

CMF C7 H16 N . Cl

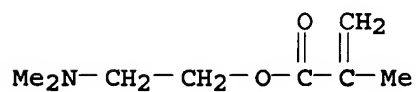


● Cl<sup>-</sup>

CM 3

CRN 2867-47-2

CMF C8 H15 N O2

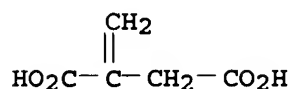


CM 4

CRN 97-65-4

CMF C5 H6 O4

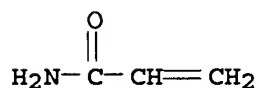




CM 5

CRN 79-06-1

CMF C3 H5 N O



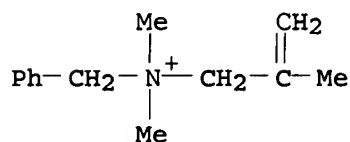
RN 585539-64-6 HCAPLUS

CN Benzenemethanaminium, N,N-dimethyl-N-(2-methyl-2-propenyl)-, chloride, polymer with 2-(dimethylamino)ethyl 2-methyl-2-propenoate, N,N-dimethyl-N-[2-[(1-oxo-2-propenyl)oxy]ethyl]benzenemethanaminium chloride, hexahydro-1,3,5-tris(1-oxo-2-propenyl)-1,3,5-triazine, methylenebutanedioic acid, 2-methyl-2-[(1-oxo-2-propenyl)amino]-1-propanesulfonic acid and 2-propenamide (9CI) (CA INDEX NAME)

CM 1

CRN 122412-33-3

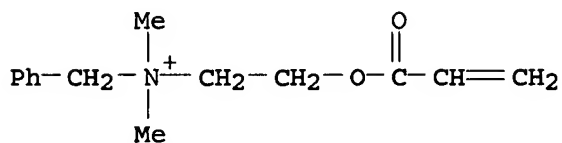
CMF C13 H20 N . Cl

● Cl<sup>-</sup>

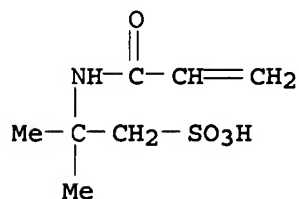
CM 2

CRN 46830-22-2

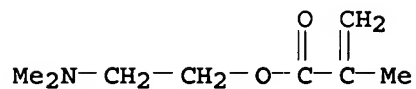
CMF C14 H20 N O2 . Cl

● Cl<sup>-</sup>

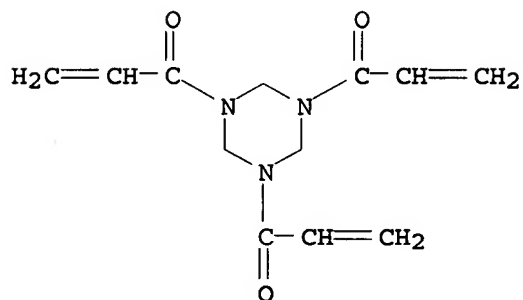
CM 3

CRN 15214-89-8  
CMF C7 H13 N O4 S

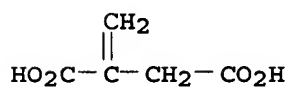
CM 4

CRN 2867-47-2  
CMF C8 H15 N O2

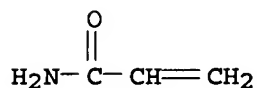
CM 5

CRN 959-52-4  
CMF C12 H15 N3 O3

CM 6

CRN 97-65-4  
CMF C5 H6 O4

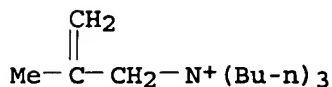
CM 7

CRN 79-06-1  
CMF C3 H5 N O

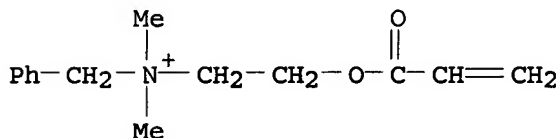
RN 585539-70-4 HCAPLUS

CN Benzenemethanaminium, N,N-dimethyl-N-[2-[(1-oxo-2-propenyl)oxy]ethyl]-, chloride, polymer with N,N-dibutyl-N-(2-methyl-2-propenyl)-1-butanaminium chloride, 2-(dimethylamino)ethyl 2-methyl-2-propenoate, N,N'-methylenebis[2-propenamide], methylenebutanedioic acid and 2-propenamide (9CI) (CA INDEX NAME)

CM 1

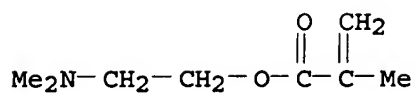
CRN 62721-66-8  
CMF C16 H34 N . Cl● Cl<sup>-</sup>

CM 2

CRN 46830-22-2  
CMF C14 H20 N O2 . Cl● Cl<sup>-</sup>

CM 3

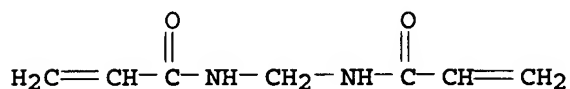
CRN 2867-47-2  
CMF C8 H15 N O2



CM 4

CRN 110-26-9

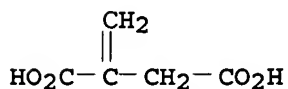
CMF C7 H10 N2 O2



CM 5

CRN 97-65-4

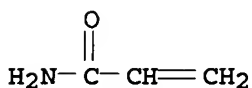
CMF C5 H6 O4



CM 6

CRN 79-06-1

CMF C3 H5 N O



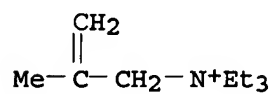
RN 585539-72-6 HCAPLUS

CN Benzenemethanaminium, N,N-dimethyl-N-[2-[(1-oxo-2-propenyl)oxy]ethyl]-, chloride, polymer with N-[3-(dimethylamino)propyl]-2-propenamide, N,N-dimethyl-2-propenamide, methylenebutanedioic acid, 2-propenamide and N,N,N-triethyl-2-methyl-2-propen-1-aminium chloride (9CI) (CA INDEX NAME)

CM 1

CRN 94267-60-4

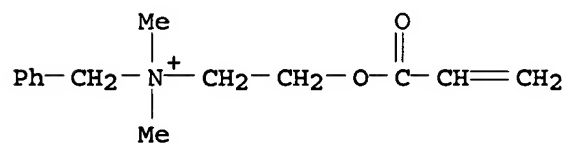
CMF C10 H22 N . Cl

● Cl<sup>-</sup>

CM 2

CRN 46830-22-2

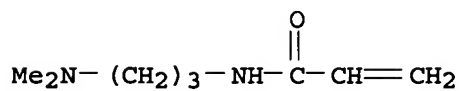
CMF C14 H20 N O2 . Cl

● Cl<sup>-</sup>

CM 3

CRN 3845-76-9

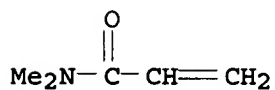
CMF C8 H16 N2 O



CM 4

CRN 2680-03-7

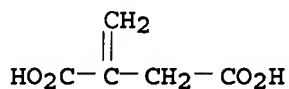
CMF C5 H9 N O



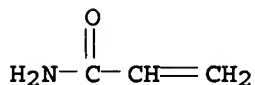
CM 5

CRN 97-65-4

CMF C5 H6 O4



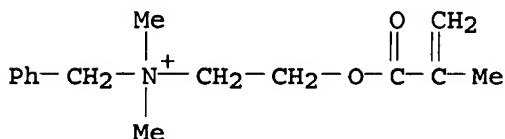
CM 6

CRN 79-06-1  
CMF C3 H5 N O

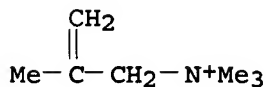
RN 585539-73-7 HCAPLUS

CN Benzenemethanaminium, N,N-dimethyl-N-[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]-, chloride, polymer with N-[3-(dimethylamino)propyl]-2-propenamide, N,N-dimethyl-2-propenamide, hexahydro-1,3,5-tris(1-oxo-2-propenyl)-1,3,5-triazine, methylenebutanedioic acid, 2-propenamide and N,N,N,2-tetramethyl-2-propen-1-aminium chloride (9CI) (CA INDEX NAME)

CM 1

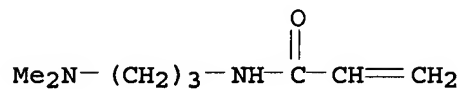
CRN 46917-07-1  
CMF C15 H22 N O2 . Cl● Cl<sup>-</sup>

CM 2

CRN 16370-13-1  
CMF C7 H16 N . Cl● Cl<sup>-</sup>

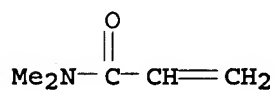
CM 3

CRN 3845-76-9  
CMF C8 H16 N2 O



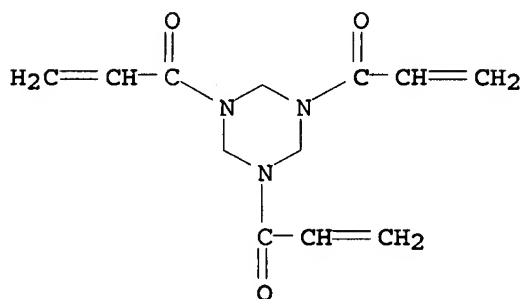
CM 4

CRN 2680-03-7  
CMF C5 H9 N O



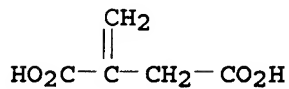
CM 5

CRN 959-52-4  
CMF C12 H15 N3 O3



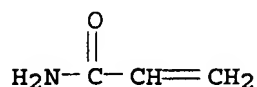
CM 6

CRN 97-65-4  
CMF C5 H6 O4



CM 7

CRN 79-06-1  
CMF C3 H5 N O



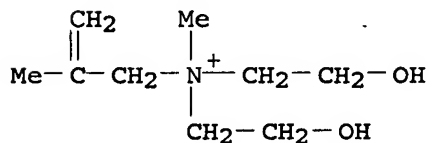
RN 585539-77-1 HCAPLUS

CN Benzenemethanaminium, N,N-dimethyl-N-[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]-, chloride, polymer with N,N-bis(2-hydroxyethyl)-N,2-dimethyl-2-propen-1-aminium chloride, N,N-dimethyl-N-[2-[(1-oxo-2-propenyl)oxy]ethyl]benzenemethanaminium chloride, N,N-dimethyl-2-propenamide, methylenebutanedioic acid, 2-propenamide and 2-propenenitrile (9CI) (CA INDEX NAME)

CM 1

CRN 585539-76-0

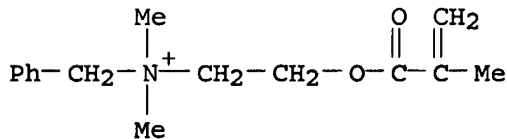
CMF C9 H20 N O2 . Cl

● Cl<sup>-</sup>

CM 2

CRN 46917-07-1

CMF C15 H22 N O2 . Cl

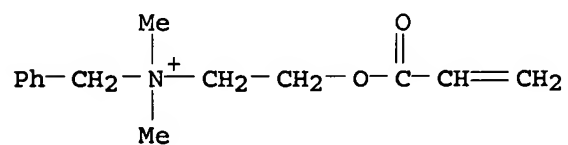
● Cl<sup>-</sup>

CM 3

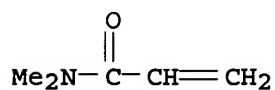
CRN 46830-22-2

CMF C14 H20 N O2 . Cl





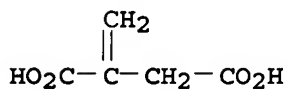
CM 4

CRN 2680-03-7  
CMF C5 H9 N O

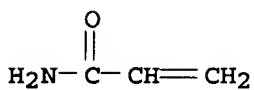
CM 5

CRN 107-13-1  
CMF C3 H3 N

CM 6

CRN 97-65-4  
CMF C5 H6 O4

CM 7

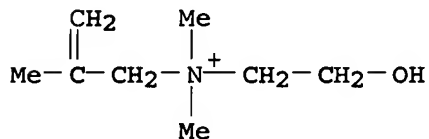
CRN 79-06-1  
CMF C3 H5 N ORN 585539-78-2 HCAPLUS  
CN Benzenemethanaminium, N,N-dimethyl-N-[2-[(2-methyl-1-oxo-2-

propenyl)oxy]ethyl]-, chloride, polymer with 2-(dimethylamino)ethyl  
 2-methyl-2-propenoate, hexahydro-1,3,5-tris(1-oxo-2-propenyl)-1,3,5-  
 triazine, N-(2-hydroxyethyl)-N,N,2-trimethyl-2-propen-1-aminium chloride,  
 methylenebutanedioic acid, N-(1-methylethyl)-2-propenamide and  
 2-propenamide (9CI) (CA INDEX NAME)

CM 1

CRN 91485-07-3

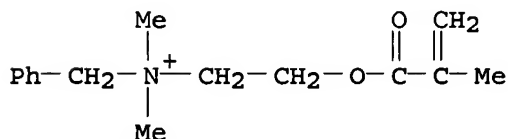
CMF C8 H18 N O . Cl

● Cl<sup>-</sup>

CM 2

CRN 46917-07-1

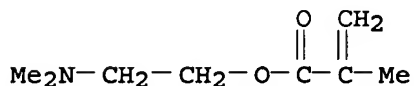
CMF C15 H22 N O2 . Cl

● Cl<sup>-</sup>

CM 3

CRN 2867-47-2

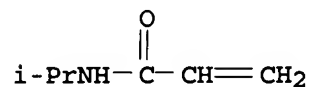
CMF C8 H15 N O2



CM 4

CRN 2210-25-5

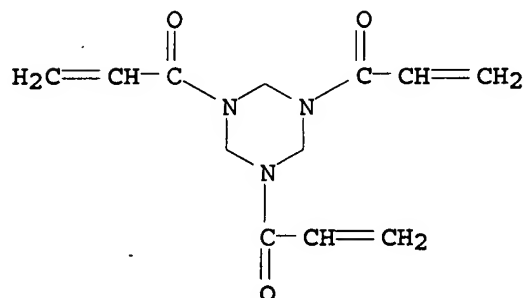
CMF C6 H11 N O



CM 5

CRN 959-52-4

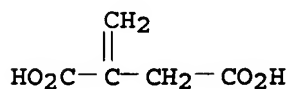
CMF C12 H15 N3 O3



CM 6

CRN 97-65-4

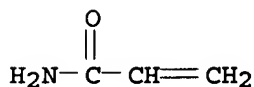
CMF C5 H6 04



CM 7

CRN 79-06-1

CMF C3 H5 N O



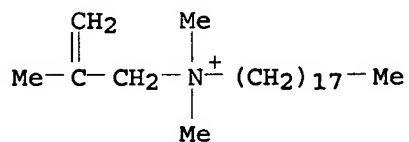
RN 585539-80-6 HCAPLUS

CN Benzenemethanaminium, N,N-dimethyl-N-[2-[(1-oxo-2-propenyl)oxy]ethyl]-, chloride, polymer with 2-(dimethylamino)ethyl 2-methyl-2-propenoate, N,N-dimethyl-N-(2-methyl-2-propenyl)-1-octadecanaminium chloride, N,N-dimethyl-2-propenamide, N-(2-hydroxyethyl)-N,N,2-trimethyl-2-propen-1-aminium chloride, methylenebutanedioic acid, 2-methyl-2-propenamide and 2-propenamide (9CI) (CA INDEX NAME)

CM 1

CRN 585539-79-3

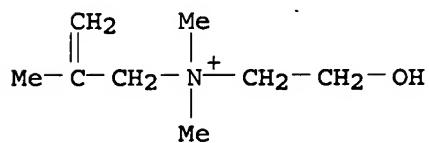
CMF C24 H50 N . Cl

● Cl<sup>-</sup>

CM 2

CRN 91485-07-3

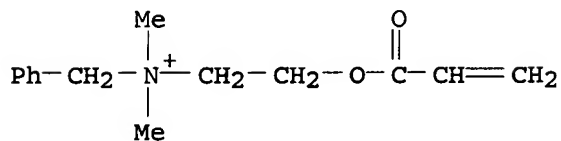
CMF C8 H18 N O . Cl

● Cl<sup>-</sup>

CM 3

CRN 46830-22-2

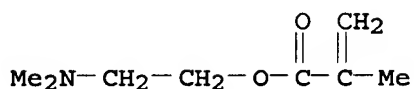
CMF C14 H20 N O2 . Cl

● Cl<sup>-</sup>

CM 4

CRN 2867-47-2

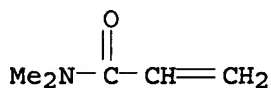
CMF C8 H15 N O2



CM 5

CRN 2680-03-7

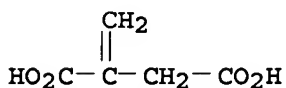
CMF C5 H9 N O



CM 6

CRN 97-65-4

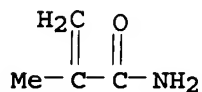
CMF C5 H6 O4



CM 7

CRN 79-39-0

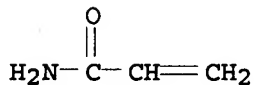
CMF C4 H7 N O



CM 8

CRN 79-06-1

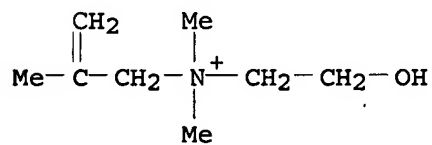
CMF C3 H5 N O



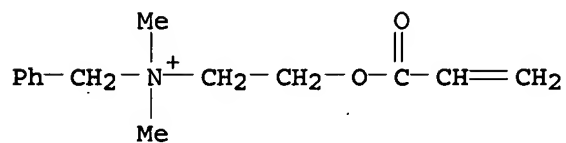
RN 585539-81-7 HCAPLUS

CN Benzenemethanaminium, N,N-dimethyl-N-[2-[(1-oxo-2-propenyl)oxy]ethyl]-, chloride, polymer with 2-(dimethylamino)ethyl 2-methyl-2-propenoate, N,N-dimethyl-2-propenamide, N-(2-hydroxyethyl)-N,N,2-trimethyl-2-propen-1-aminium chloride, methylenebutanedioic acid, 2-propenamide and sodium 2-methyl-2-propene-1-sulfonate (9CI) (CA INDEX NAME)

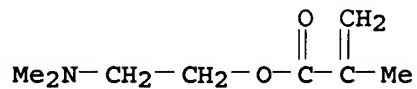
CM 1

CRN 91485-07-3  
CMF C8 H18 N O . Cl● Cl<sup>-</sup>

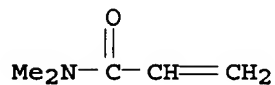
CM 2

CRN 46830-22-2  
CMF C14 H20 N O2 . Cl● Cl<sup>-</sup>

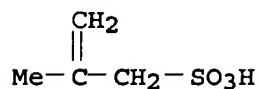
CM 3

CRN 2867-47-2  
CMF C8 H15 N O2

CM 4

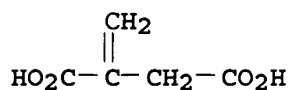
CRN 2680-03-7  
CMF C5 H9 N O

CM 5

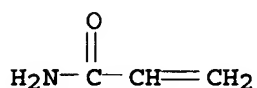
CRN 1561-92-8  
CMF C4 H8 O3 S . Na

● Na

CM 6

CRN 97-65-4  
CMF C5 H6 O4

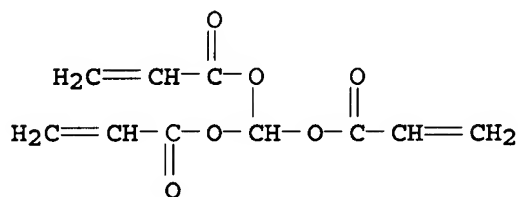
CM 7

CRN 79-06-1  
CMF C3 H5 N O

RN 585539-82-8 HCAPLUS  
CN Benzenemethanaminium, N,N-dimethyl-N-[2-[(1-oxo-2-propenyl)oxy]ethyl]-, chloride, polymer with hexahydro-1,3,5-tris(1-oxo-2-propenyl)-1,3,5-triazine, N-(2-hydroxyethyl)-N,N,2-trimethyl-2-propen-1-aminium chloride, methylenebutanedioic acid, methylidyne tri-2-propenoate, 2-propenamide and sodium 2-methyl-2-propene-1-sulfonate (9CI) (CA INDEX NAME)

CM 1

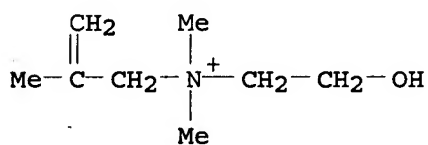
CRN 119495-38-4  
CMF C10 H10 O6



CM 2

CRN 91485-07-3

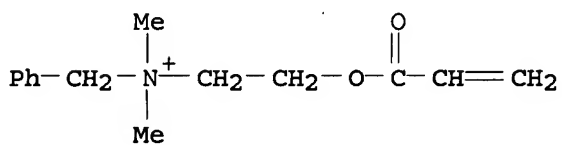
CMF C8 H18 N O . Cl

● Cl<sup>-</sup>

CM 3

CRN 46830-22-2

CMF C14 H20 N O2 . Cl

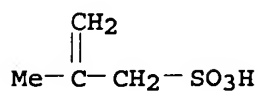
● Cl<sup>-</sup>

CM 4

CRN 1561-92-8

CMF C4 H8 O3 S . Na



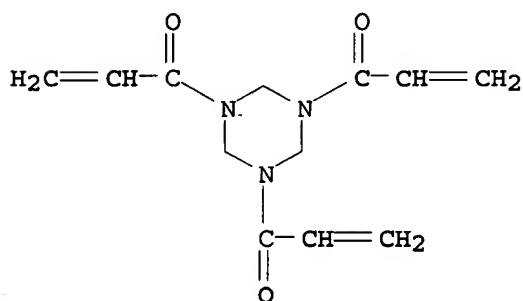


● Na

CM 5

CRN 959-52-4

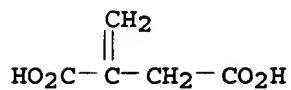
CMF C12 H15 N3 O3



CM 6

CRN 97-65-4

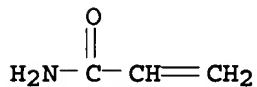
CMF C5 H6 O4



CM 7

CRN 79-06-1

CMF C3 H5 N O

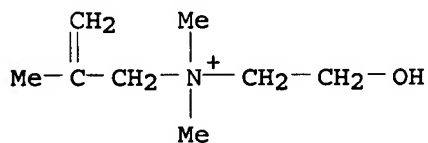


RN 585539-83-9 HCAPLUS

CN 2-Propen-1-aminium, N-(2-hydroxyethyl)-N,N,2-trimethyl-, chloride, polymer with methylenebutanedioic acid and 2-propenamide (9CI) (CA INDEX NAME)

CM 1

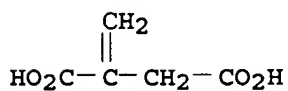
CRN 91485-07-3  
CMF C8 H18 N O . Cl



● Cl<sup>-</sup>

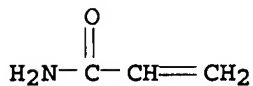
CM 2

CRN 97-65-4  
CMF C5 H6 O4



CM 3

CRN 79-06-1  
CMF C3 H5 N O

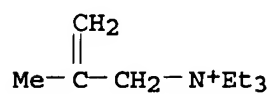


RN 585540-02-9 HCAPLUS

CN Benzenemethanaminium, N,N-dimethyl-N-[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]-, chloride, polymer with N,N-dimethyl-N-[2-[(1-oxo-2-propenyl)oxy]ethyl]benzenemethanaminium chloride, hexahydro-1,3,5-tris(1-oxo-2-propenyl)-1,3,5-triazine, methylenebutanedioic acid, methyl 2-methyl-2-propenoate, 2-propenamide and N,N,N-triethyl-2-methyl-2-propen-1-aminium chloride (9CI) (CA INDEX NAME)

CM 1

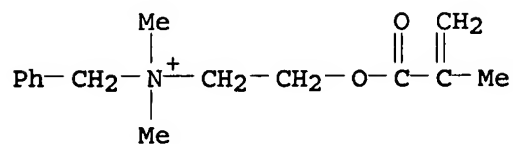
CRN 94267-60-4  
CMF C10 H22 N . Cl

● Cl<sup>-</sup>

CM 2

CRN 46917-07-1

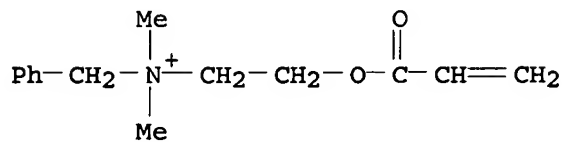
CMF C15 H22 N O2 . Cl

● Cl<sup>-</sup>

CM 3

CRN 46830-22-2

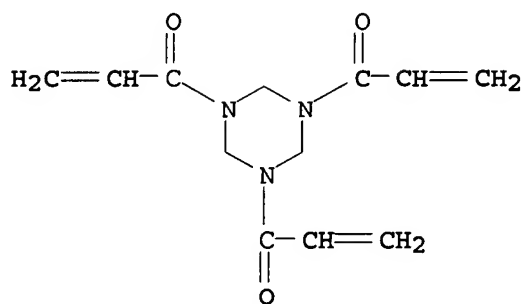
CMF C14 H20 N O2 . Cl

● Cl<sup>-</sup>

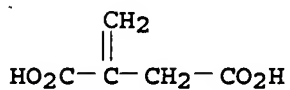
CM 4

CRN 959-52-4

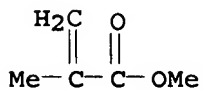
CMF C12 H15 N3 O3



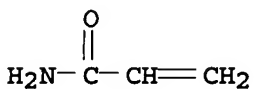
CM 5

CRN 97-65-4  
CMF C5 H6 O4

CM 6

CRN 80-62-6  
CMF C5 H8 O2

CM 7

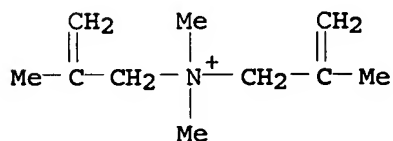
CRN 79-06-1  
CMF C3 H5 N O

L39 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2005 ACS on STN  
AN 1966:483119 HCAPLUS  
DN 65:83119  
OREF 65:15611e-h  
TI Water-soluble linear polymers  
PA Peninsular Chemresearch, Inc.  
SO 14 pp.  
DT Patent  
LA Unavailable

## FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 1037028		19660720	GB	
PRAI	US		19621214		
GI	For diagram(s), see printed CA Issue.				
AB	<p>Linear high-mol.-weight polymers were obtained by treatment of monomers containing 2 olefinic groups separated by 3 C atoms and a quaternary ammonium chloride group with tert-BuOOH in H<sub>2</sub>O. Thus, monomers having the general formula I were polymerized. (R, R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> are given): H, H, Me, Me; H, H, Et, Et; H, H, CH<sub>2</sub>CH<sub>2</sub>OH, CH<sub>2</sub>CH<sub>2</sub>OH; H, H, Bu, Bu; H, H, n-dodecyl, n-dodecyl; Me, Me, Me, Me; H, Me, Me, Me; H, Cl, Me, Me; Cl, Cl, Me, Me; Cl, Me, Me, Me; H, H, PhOCH<sub>2</sub>, PhOCH<sub>2</sub>; Br, Br, EtOCH<sub>2</sub>, EtOCH<sub>2</sub>; Cl, Cl, EtO<sub>2</sub>CCH<sub>2</sub>CH<sub>2</sub>, EtO<sub>2</sub>CCH<sub>2</sub>CH<sub>2</sub>; H, H, FCH<sub>2</sub>(CH<sub>2</sub>)<sub>2</sub>, FCH<sub>2</sub>(CH<sub>2</sub>)<sub>2</sub>; Me, Me, NCCH<sub>2</sub>CH<sub>2</sub>, NCCH<sub>2</sub>CH<sub>2</sub>; H, H, PhOCH<sub>2</sub>CH<sub>2</sub>, PhOCH<sub>2</sub>CH<sub>2</sub>; H, H, naphthyloxyethyl, naphthyloxyethyl; H, H, PrSCH<sub>2</sub>, PrSCH<sub>2</sub>; Me, Me, PhSCH<sub>2</sub>CH<sub>2</sub>, PhSCH<sub>2</sub>CH<sub>2</sub>; H, H, AcCH<sub>2</sub>, AcCH<sub>2</sub>; Me, Me, cyclopentylmethyl, cyclopentylmethyl; H, H, cyclohexylmethyl, cyclohexylmethyl; H, H, MeCH(NO<sub>2</sub>)CH<sub>2</sub>, MeCH(NO<sub>2</sub>)CH<sub>2</sub>; Me, Me, CH<sub>2</sub>CH<sub>2</sub>CONH<sub>2</sub>, CH<sub>2</sub>CH<sub>2</sub>CONH<sub>2</sub>; H, H, Me, Ph. Other monomers used were: N,N-diallyl-, N-allyl-N-methyl-2-vinyl-, N,N-dimethyl-2,6-divinyl-, and N,N-bis(p-cyanophenyl)-2,6-divinylpiperidinium chloride; N,N-diallyl-, N-allyl-N-methyl-2-vinyl-, N,N-dimethyl-2,6-divinyl-, N,N-bis(p-chlorophenyl)-2,6-divinyl-, and N-methyl-N-(p-acetophenyl-2-vinylmorpholinium chloride; and N,N-diallyl-, N-allyl-N-methyl-2-vinyl-, N,N-dimethyl-2,5-divinyl-, N,N-bis(m-ethylthiophenyl)-2,5-divinyl-, and N-(phenylthioethyl) - N-(hydroxyethyl)-2,6-divinylpyrrolidinium chloride. Other heterocyclic monomers were 1,1-diallylpyrazolinium chloride, 1,1-diallylimidazolium chloride, and N-allyl-2-vinylpyridinium chloride. N, N-Diallylpyrrole was polymerized by BaO<sub>2</sub>. By using a quaternary anion-exchange column, the polymeric chlorides obtained were converted to polymers having other anions. The polymer products are useful as spinning aids, antistatic, bacteriostatic, and fungistatic agents, wet-strength improvers for papers, accelerators for curing rubber, curing agents for epoxy resins, stabilizers and regulators for particle size in suspension polymerization, and as surfactants, especially flocculating agents.</p>				
IC	C08F				
CC	48 (Plastics Technology)				
IT	Peroxides				
	(catalysts in polymerization, of unsatd. ammonium compds.)				
IT	Catalysts and Catalysis				
	(in polymerization, of ammonium compds. (unsatd.), peroxides as)				
IT	Polymerization				
	(of unsatd. ammonium compds., peroxide catalysts in)				
IT	Ammonium, alkenylethyldimethyl				
	(alkenyl-group-containing, polymerization of, peroxides as catalysts in)				
IT	Morpholinium compounds, 4,4-bis(p-chlorophenyl)-2,6-divinyl-, chloride				
	Morpholinium compounds, 4,4-diallyl-, chloride				
	Morpholinium compounds, 4,4-dimethyl-2,6-divinyl-, chloride				
	Morpholinium compounds, 4-(p-acetylphenyl)-4-(2-methylallyl)-2-vinyl-, chloride				
	Morpholinium compounds, 4-allyl-4-methyl-2-vinyl-, chloride				
	Pyrrolidinium compounds, 1,1-bis[m-(ethylthio)phenyl]-2,5-divinyl-, chloride				
	Pyrrolidinium compounds, 1,1-diallyl-, chloride				
	Pyrrolidinium compounds, 1,1-dimethyl-2,5-divinyl-, chloride				
	Pyrrolidinium compounds, 1-(2-hydroxyethyl)-1-[2-(phenylthio)ethyl]-2,5-divinyl-, chloride				
	Pyrrolidinium compounds, 1-allyl-1-methyl-2-vinyl-, chloride				
	Pyrrololium compounds, 1,1-diallyl-, chloride				
	(polymerization of, with peroxide catalysts, and polymers therefrom)				

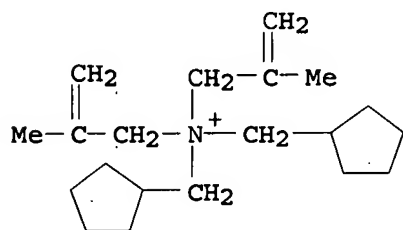
- IT Piperidinium compounds, 1,1-bis(p-cyanophenyl)-2,6-divinyl-, chloride, homopolymer  
Piperidinium compounds, 1,1-diallyl-, chloride, homopolymer  
Piperidinium compounds, 1,1-dimethyl-2,6-divinyl-, chloride, homopolymer  
Piperidinium compounds, 1-allyl-1-methyl-2-vinyl-, chloride, homopolymer  
(with peroxide catalysts, and polymers therefrom)
- IT 75-91-2, tert-Butyl hydroperoxide 1304-29-6, Barium peroxide  
(catalysts, in polymerization of unsatd. ammonium compds.)
- IT 6982-68-9, Ammonium, dimethylbis(2-methylallyl), chloride  
13107-00-1, Ammonium, diallyldiethyl, chloride 13866-89-2, Ammonium,  
diallylmethylphenyl, chloride 13897-53-5, Ammonium,  
bis(cyclopentylmethyl)bis(2-methylallyl), chloride 14219-12-6, Ammonium,  
diallylbis(2-hydroxyethyl), chloride 14219-13-7, Ammonium,  
diallyldibutyl, chloride 14219-14-8, Ammonium, diallyldidodecyl,  
chloride 14219-15-9, Ammonium, allyldimethyl(2-methylallyl),  
chloride 14219-16-0, Ammonium, allyl(2-chloroallyl)dimethyl, chloride  
14219-17-1, Ammonium, bis(2-chloroallyl)dimethyl, chloride  
14219-18-2, Ammonium, (2-chloroallyl)dimethyl(2-methylallyl),  
chloride 14219-19-3, Ammonium, bis(2-bromoallyl)bis(2-ethoxyethyl),  
chloride 14219-20-6, Ammonium, bis(2-carboxyethyl)bis(2-chloroallyl),  
chloride, di-Et ester 14219-21-7, Ammonium, diallylbis(4-fluorobutyl),  
chloride 14219-23-9, Ammonium, diallylbis(2-phenoxyethyl), chloride  
14219-24-0, Ammonium, diallylbis[(propylthio)methyl], chloride  
14219-25-1, Ammonium, diacetonyldiallyl, chloride 14219-27-3, Ammonium,  
diallylbis(cyclohexylmethyl), chloride 14219-28-4, Ammonium,  
diallylbis(2-nitropropyl), chloride 14219-29-5, Ammonium,  
bis(2-carbamoylethyl)bis(2-methylallyl), chloride 15553-03-4,  
Ammonium, bis(2-methylallyl)bis[2-(phenylthio)ethyl], chloride  
30112-64-2, Ammonium, diallylbis(methoxyphenyl), chloride 30304-59-7,  
Ammonium, diallylbis[2-(naphthyloxy)ethyl], chloride 48042-45-1,  
Ammonium, diallyldimethyl  
(polymerization of, with peroxide catalysts, and polymers therefrom)
- IT 14219-22-8, Ammonium, bis(2-cyanoethyl)bis(2-methylallyl),  
chloride  
(polymerization of, with. peroxide catalysts, and polymers therefrom)
- IT 6982-68-9, Ammonium, dimethylbis(2-methylallyl), chloride  
13897-53-5, Ammonium, bis(cyclopentylmethyl)bis(2-methylallyl),  
chloride 14219-15-9, Ammonium, allyldimethyl(2-methylallyl),  
chloride 14219-18-2, Ammonium, (2-chloroallyl)dimethyl(2-  
methylallyl), chloride 14219-29-5, Ammonium,  
bis(2-carbamoylethyl)bis(2-methylallyl), chloride 15553-03-4,  
Ammonium, bis(2-methylallyl)bis[2-(phenylthio)ethyl], chloride  
(polymerization of, with peroxide catalysts, and polymers therefrom)
- RN 6982-68-9 HCAPLUS
- CN 2-Propen-1-aminium, N,N,2-trimethyl-N-(2-methyl-2-propenyl)-, chloride  
(9CI) (CA INDEX NAME)



● Cl<sup>-</sup>

RN 13897-53-5 HCAPLUS

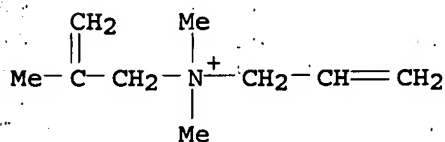
CN Ammonium, bis(cyclopentylmethyl)bis(2-methylallyl)-, chloride (8CI) (CA INDEX NAME)



● Cl<sup>-</sup>

RN 14219-15-9 HCAPLUS

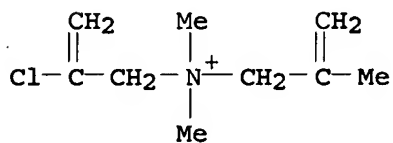
CN Ammonium, allyldimethyl(2-methylallyl)-, chloride (8CI) (CA INDEX NAME)



● Cl<sup>-</sup>

RN 14219-18-2 HCAPLUS

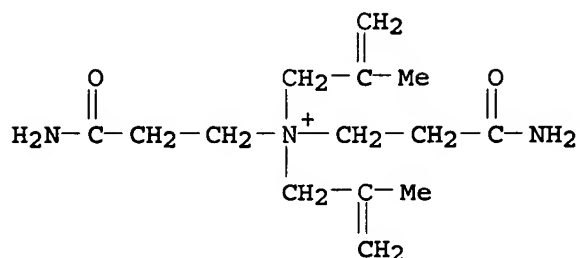
CN Ammonium, (2-chloroallyl)dimethyl(2-methylallyl)-, chloride (8CI) (CA INDEX NAME)



● Cl<sup>-</sup>

RN 14219-29-5 HCAPLUS

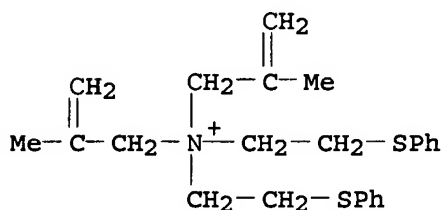
CN Ammonium, bis(2-carbamoyl)ethyl)bis(2-methylallyl)-, chloride (8CI) (CA INDEX NAME)



● Cl<sup>-</sup>

RN 15553-03-4 HCAPLUS

CN Ammonium, bis(2-methylallyl)bis[2-(phenylthio)ethyl]-, chloride (8CI) (CA INDEX NAME)



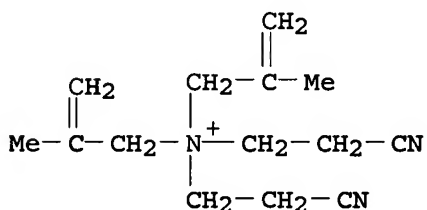
● Cl<sup>-</sup>

IT 14219-22-8, Ammonium, bis(2-cyanoethyl)bis(2-methylallyl), chloride

(polymerization of, with. peroxide catalysts, and polymers therefrom)

RN 14219-22-8 HCAPLUS

CN Ammonium, bis(2-cyanoethyl)bis(2-methylallyl)-, chloride (8CI) (CA INDEX NAME)



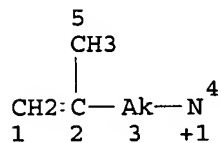
● Cl<sup>-</sup>



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=&gt; =&gt; D QUE

L5 SCR 2043  
L6 STR



## NODE ATTRIBUTES:

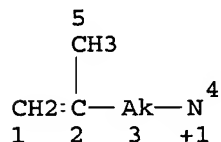
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ECOUNT IS X4 C AT 3

## GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 5

## STEREO ATTRIBUTES: NONE

L7 52 SEA FILE=REGISTRY SSS FUL L6 AND L5  
L8 SCR 2043  
L9 STR



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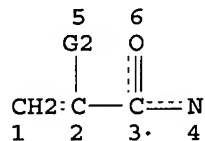
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## GRAPH ATTRIBUTES:

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NUMBER OF NODES IS 5

## STEREO ATTRIBUTES: NONE

L10 ( 52) SEA FILE=REGISTRY SSS FUL L9 AND L8  
L11 STR



VAR G2=H/CH3

## NODE ATTRIBUTES:

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DEFAULT ECLEVEL IS LIMITED

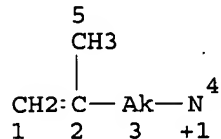
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RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 6

STEREO ATTRIBUTES: NONE

L12 32 SEA FILE=REGISTRY SUB=L10 SSS FUL L11  
L13 STR



NODE ATTRIBUTES:

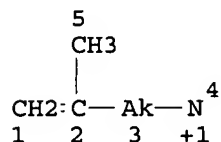
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NUMBER OF NODES IS 5

STEREO ATTRIBUTES: NONE

L14 SCR 2040  
L15 562 SEA FILE=REGISTRY SSS FUL L13 AND L14  
L16 SCR 2043  
L17 STR



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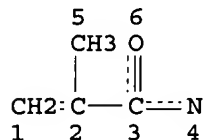
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ECOUNT IS X4 C AT 3

GRAPH ATTRIBUTES:

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NUMBER OF NODES IS 5

STEREO ATTRIBUTES: NONE

L18 ( 52) SEA FILE=REGISTRY SSS FUL L17 AND L16  
L19 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

## GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 6

## STEREO ATTRIBUTES: NONE

L20 1 SEA FILE=REGISTRY SUB=L18 SSS FUL L19  
L21 184 SEA FILE=HCAPLUS ABB=ON L15  
L23 7 SEA FILE=HCAPLUS ABB=ON L21 AND ?ACRYLAMID?  
L24 11 SEA FILE=HCAPLUS ABB=ON L7 OR L12 OR L20  
L25 8 SEA FILE=HCAPLUS ABB=ON (L24 OR L21) AND PAPER?/SC,SX,AB,BI  
L26 2 SEA FILE=HCAPLUS ABB=ON (L23 OR L25) NOT L25

=&gt; D L26 IBIB ABS IND HISTR 1-2

'HISTR' IS NOT A VALID FORMAT FOR FILE 'HCAPLUS'

The following are valid formats:

ABS ----- GI and AB  
ALL ----- BIB, AB, IND, RE  
APPS ----- AI, PRAI  
BIB ----- AN, plus Bibliographic Data and PI table (default)  
CAN ----- List of CA abstract numbers without answer numbers  
CBIB ----- AN, plus Compressed Bibliographic Data  
DALL ----- ALL, delimited (end of each field identified)  
DMAX ----- MAX, delimited for post-processing  
FAM ----- AN, PI and PRAI in table, plus Patent Family data  
FBIB ----- AN, BIB, plus Patent FAM  
IND ----- Indexing data  
IPC ----- International Patent Classifications  
MAX ----- ALL, plus Patent FAM, RE  
PATS ----- PI, SO  
SAM ----- CC, SX, TI, ST, IT  
SCAN ----- CC, SX, TI, ST, IT (random display, no answer numbers;  
SCAN must be entered on the same line as the DISPLAY,  
e.g., D SCAN or DISPLAY SCAN)  
STD ----- BIB, IPC, and NCL  
  
IABS ----- ABS, indented with text labels  
IALL ----- ALL, indented with text labels  
IBIB ----- BIB, indented with text labels  
IMAX ----- MAX, indented with text labels  
ISTD ----- STD, indented with text labels  
  
OBIB ----- AN, plus Bibliographic Data (original)  
OIBIB ----- OBIB, indented with text labels  
  
SBIB ----- BIB, no citations  
SIBIB ----- IBIB, no citations  
  
HIT ----- Fields containing hit terms  
HITIND ----- IC, ICA, ICI, NCL, CC and index field (ST and IT)  
containing hit terms  
HITRN ----- HIT RN and its text modification  
HITSTR ----- HIT RN, its text modification, its CA index name, and  
its structure diagram  
HITSEQ ----- HIT RN, its text modification, its CA index name, its  
structure diagram, plus NTE and SEQ fields  
FHITSTR ----- First HIT RN, its text modification, its CA index name, and  
its structure diagram

FHITSEQ ----- First HIT RN, its text modification, its CA index name, its structure diagram, plus NTE and SEQ fields  
KWIC ----- Hit term plus 20 words on either side  
OCC ----- Number of occurrence of hit term and field in which it occurs

To display a particular field or fields, enter the display field codes. For a list of the display field codes, enter HELP DFIELDS at an arrow prompt (=>). Examples of formats include: TI; TI,AU; BIB,ST; TI,IND; TI,SO. You may specify the format fields in any order and the information will be displayed in the same order as the format specification.

All of the formats (except for SAM, SCAN, HIT, HITIND, HITRN, HITSTR, FHITSTR, HITSEQ, FHITSEQ, KWIC, and OCC) may be used with DISPLAY ACC to view a specified Accession Number.

ENTER DISPLAY FORMAT (BIB): L26 IBIB ABS IND HITSTR 1-2

'L26' IS NOT A VALID FORMAT FOR FILE 'HCAPLUS'

'1-2' IS NOT A VALID FORMAT FOR FILE 'HCAPLUS'

The following are valid formats:

ABS ----- GI and AB  
ALL ----- BIB, AB, IND, RE  
APPS ----- AI, PRAI  
BIB ----- AN, plus Bibliographic Data and PI table (default)  
CAN ----- List of CA abstract numbers without answer numbers  
CBIB ----- AN, plus Compressed Bibliographic Data  
DALL ----- ALL, delimited (end of each field identified)  
DMAX ----- MAX, delimited for post-processing  
FAM ----- AN, PI and PRAI in table, plus Patent Family data  
FBIB ----- AN, BIB, plus Patent FAM  
IND ----- Indexing data  
IPC ----- International Patent Classifications  
MAX ----- ALL, plus Patent FAM, RE  
PATS ----- PI, SO  
SAM ----- CC, SX, TI, ST, IT  
SCAN ----- CC, SX, TI, ST, IT (random display, no answer numbers;  
SCAN must be entered on the same line as the DISPLAY,  
e.g., D SCAN or DISPLAY SCAN)  
STD ----- BIB, IPC, and NCL  
  
IABS ----- ABS, indented with text labels  
IALL ----- ALL, indented with text labels  
IBIB ----- BIB, indented with text labels  
IMAX ----- MAX, indented with text labels  
ISTD ----- STD, indented with text labels  
  
OBIB ----- AN, plus Bibliographic Data (original)  
OIBIB ----- OBIB, indented with text labels  
  
SBIB ----- BIB, no citations  
SIBIB ----- IBIB, no citations  
  
HIT ----- Fields containing hit terms  
HITIND ----- IC, ICA, ICI, NCL, CC and index field (ST and IT)  
containing hit terms  
HITRN ----- HIT RN and its text modification  
HITSTR ----- HIT RN, its text modification, its CA index name, and  
its structure diagram  
HITSEQ ----- HIT RN, its text modification, its CA index name, its

structure diagram, plus NTE and SEQ fields  
FHITSTR ----- First HIT RN, its text modification, its CA index name, and  
its structure diagram  
FHITSEQ ----- First HIT RN, its text modification, its CA index name, its  
structure diagram, plus NTE and SEQ fields  
KWIC ----- Hit term plus 20 words on either side  
OCC ----- Number of occurrence of hit term and field in which it occurs

To display a particular field or fields, enter the display field codes. For a list of the display field codes, enter HELP DFIELDS at an arrow prompt (=>). Examples of formats include: TI; TI,AU; BIB,ST; TI,IND; TI,SO. You may specify the format fields in any order and the information will be displayed in the same order as the format specification.

All of the formats (except for SAM, SCAN, HIT, HITIND, HITRN, HITSTR, FHITSTR, HITSEQ, FHITSEQ, KWIC, and OCC) may be used with DISPLAY ACC to view a specified Accession Number.  
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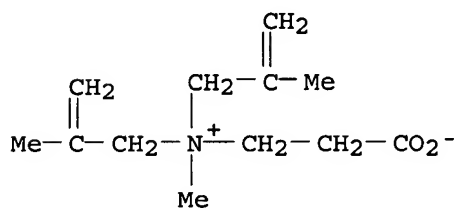
L26 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1960:94967 HCAPLUS  
DOCUMENT NUMBER: 54:94967  
ORIGINAL REFERENCE NO.: 54:17969d-h  
TITLE: Reaction products of formaldehyde with copolymers of  
**acrylamide** and unsaturated betaines  
INVENTOR(S): Schuller, Walter H.; Thomas, Walter M.  
PATENT ASSIGNEE(S): American Cyanamid Co.  
DOCUMENT TYPE: Patent  
LANGUAGE: Unavailable  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
US 2935493		19600503	US	

AB HCHO is made to react under alkaline conditions with copolymers of **acrylamide** (I) and (acryloylaminopropyl) (dimethyl)carboxymethylamm onium betaine (II) having the formula  $\text{CH}_2\text{:CHCONH}(\text{CH}_2)_3\text{N}^+\text{Me}_2\text{CH}_2\text{CO}_2^-$ , II constituting 1-40% by weight of the total mixture. Thus, II was prepared by mixing 52 g. chloroacetic acid in 100 g. H<sub>2</sub>O with 22 g. NaOH pellets in 100 g. H<sub>2</sub>O at <20°, and adding the ClCH<sub>2</sub>CO<sub>2</sub>Na dropwise during 1 hr. to 78 g. **dimethylaminopropylacrylamide** in 121 g. H<sub>2</sub>O. After an addnl. hr. at 70-6°, a 78% yield is obtained. The mixture was adjusted to pH 9 with NaOH and extracted with 2-70 ml. portions of C<sub>6</sub>H<sub>6</sub>. The aqueous solution had an iodine number of 24.7 (21% II calculated). Similarly prepared were: diallyl(methyl)(carboxymethyl)ammonium betaine, triallyl(carboxymethyl)ammonium betaine, and allyl(3-oxapenta-methylene) (carboxymethyl)ammonium betaine. Dimethallyl(methyl)(carboxyethyl)ammoniu m betaine was prepared by substituting β-bromopropionic acid for BrCH<sub>2</sub>CO<sub>2</sub>H. Allyl(dimethyl)(carboxymethyl)ammonium betaine was prepared by reaction of Na allylglycinate and MeI in aqueous NaOH. A sample of II (21.4 g.) in 180 g. H<sub>2</sub>O and 0.2 g. (NH<sub>4</sub>)<sub>2</sub>S<sub>2</sub>O<sub>8</sub> are heated on a steam bath for 3 hrs. to yield a homopolymer. A mixture of I 80, a 22% aqueous solution II 90, and H<sub>2</sub>O 230 was adjusted to pH 2.5 with 6N H<sub>2</sub>SO<sub>4</sub> and gradually mixed with (NH<sub>4</sub>)<sub>2</sub>S<sub>2</sub>O<sub>8</sub> 0.20 in H<sub>2</sub>O 50 and K<sub>2</sub>S<sub>2</sub>O<sub>5</sub> 0.1 in H<sub>2</sub>O 50 parts under N at 40°. After 5.5 hrs., the copolymer solution was diluted with 500 ml. H<sub>2</sub>O to yield a 10% solution of a copolymer of I and II (pH 2, Brookfield viscosity of 9000 cp., and 99% total monomer conversion). To a solution of 100 g. of the copolymer at pH 10, 21.2 g. formalin was added and the mixture

- heated at 55° for 1 hr. to yield a reaction product of HCHO with the copolymer. The products are useful in formation of fibers which have increased dyeability, especially with acid dyes, and also in the plastic and coating arts.
- CC 31 (Synthetic Resins and Plastics)
- IT Fibers, synthetic  
(**acrylamide**-unsatd. betaine copolymer condensation products with HCHO for)
- IT Polymerization  
(of **acrylamide**, with betaines)
- IT Glycine, triallylbetaine  
Morpholinium compounds, 4-allyl-4-(carboxymethyl)-, hydroxide, inner salt
- IT 107-43-7, Betaine  
(derivs., manufacture and polymerization with **acrylamide**)
- IT 79-06-1, **Acrylamide**  
(polymerization of, with betaines (unsatd.), and HCHO condensation products with polymers therefrom)
- IT 79702-44-6, Glycine, (3-**acrylamidopropyl**)dimethylbetaine  
79702-44-6, Ammonium, (3-**acrylamidopropyl**)  
(carboxymethyl)dimethyl-, hydroxide, inner salt 117037-79-3, Ammonium, allyl(carboxymethyl)dimethyl-, hydroxide; inner salt 117037-79-3, Glycine, allyldimethylbetaine 119721-56-1, Glycine, diallylmethylbetaine 119721-56-1, Ammonium, diallyl(carboxymethyl)methyl-, hydroxide, inner salt 120037-13-0, Ammonium, triallyl(carboxymethyl)-, hydroxide, inner salt 120037-29-8, Ammonium, (2-carboxyethyl)methylbis(2-methylallyl)-, hydroxide, inner salt 120037-29-8,  $\beta$ -Alanine, methylbis(2-methylallyl)betaine (preparation of)
- IT 50-00-0, Formaldehyde  
(reaction products of, with **acrylamide**-unsatd. betaine polymers)
- IT 120037-29-8, Ammonium, (2-carboxyethyl)methylbis(2-methylallyl)-, hydroxide, inner salt  
(preparation of)
- RN 120037-29-8 HCAPLUS
- CN  $\beta$ -Alanine, methylbis(2-methylallyl)betaine (6CI) (CA INDEX NAME)



L26 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1960:65875 HCAPLUS

DOCUMENT NUMBER: 54:65875

ORIGINAL REFERENCE NO.: 54:12665b-i

TITLE: Linear copolymer of quaternary ammonium compounds

INVENTOR(S): Schuller, Walter H.; Thomas, Walter M.

PATENT ASSIGNEE(S): American Cyanamid Co.

DOCUMENT TYPE: Patent

LANGUAGE: Unavailable

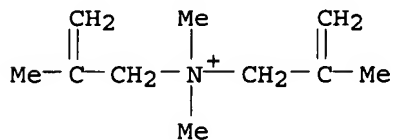
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
	US 2923701		19600202	US	
AB	<p>A mixture of 0.1-40 molar % of a single quaternary ammonium compound: <math>\text{CH}_2:\text{C}(\text{R})\text{CH}_2\text{N}^+[\text{CH}_2:\text{C}(\text{R}')\text{CH}_2](\text{R}'')(\text{R}''')\text{Y}^-</math>, where R and R' are H, Me, or Et, R'' and R''' are alkyl, hydroxy- or alkoxyalkyl groups of 1-18 C atoms, and Y is an anion, and 99.9-60 molar % of a compound which is copolymerizable with the quaternary compound and which contains a single vinyl group are copolymerized. Thus, 1125 g. of a 40% aqueous solution of <math>\text{Me}_2\text{NH}</math> is added to a 12 l., 3-necked flask. Allyl chloride (750 g.) is added dropwise with vigorous stirring over a 1-hr. period, at the end of which time the temperature is 57°. Next, 400 g. NaOH in 400 g. <math>\text{H}_2\text{O}</math> is added dropwise with stirring over 1 hr., and the temperature remained 57°. After standing for about 16 hrs., 1545 g. of allyl chloride is added slowly with stirring over 1.5 hrs., and the reflux is maintained by gentle heating on a steam bath. The solution is then refluxed for 6.5 hrs. at 46° during which time the acidity of the solution drops to pH 5. The reaction mixture is stripped in vacuo on a <math>\text{H}_2\text{O}</math> pump to remove excess allyl chloride and then is diluted with <math>\text{H}_2\text{O}</math> to a solution containing 36% diallyldimethylammonium chloride (I) and 13% NaCl by weight. The diluted solution is treated with finely divided decolorizing C for 16 hrs. Then the C is removed, and an aliquot of the pale yellow solution is titrated potentiometrically with standard acid. The absence of secondary and tertiary amines is established. The decolorized solution has an iodine number of 113 c.g.s. iodine/g. and a total solids content of 48.5% (36.0% I and 12.5% NaCl). A 1-l., 3-necked flask is equipped with 3 dropping funnels designated "A," "B," and "C." Acrylamide (68 g.) and 34 g. of a 36% aqueous solution of I containing 13% NaCl in 120 g. <math>\text{H}_2\text{O}</math> are placed in funnel A; 0.4 g. <math>(\text{NH}_4)_2\text{S}_2\text{O}_8</math> in 100 g. <math>\text{H}_2\text{O}</math> is placed in funnel B; and 0.2 g. <math>\text{KHSO}_3</math> in 100 g. <math>\text{H}_2\text{O}</math> is placed in funnel C. One quarter of the solution of reactants and 1/4 of the total volume of each of the catalyst solns. are added simultaneously to the flask, which has been previously swept with N for 30 min. A steady flow of N is kept up through the reaction set-up during the polymerization. The temperature rises to 54°, but is reduced to 40° by external cooling and kept at this temperature for most of the reaction. The rest of the reactants and catalyst are added in increments over the next 70 min. The reaction mixture is heated for 3.5 hrs. at 40° after the last addition. The product, containing 20% "active solids" (salt-free linear copolymer of acrylamide and I), is a viscous solution. It is diluted to 10% solids by 400 g. <math>\text{H}_2\text{O}</math>. The final, homogeneous solution, has a pH of 4.5 and a Brookfield viscosity of 178 cp. at 25°. The iodine number of the material is 2.6 c.g.s. of iodine/g. of sample. The polymer solution is adjusted as in U.S. 2,923,700 (preceding abstract) and used to treat woolen goods. After 5 cycles of washing and drying operations and a washing of 1 hr. in soap solution after each cycle, the dried, treated cloth shows a shrinkage of only 8.7%. Other copolymers prepared are acrylonitrile and I; ternary polymers of acrylonitrile, Me acrylate, and I; styrene and I; Me isopropyl ketone, and I; vinyl acetate and I; Me acrylate and dimethallyldimethylammonium chloride (II); ternary polymer of acrylonitrile, vinyl acetate, and II; and ternary polymer of acrylamide, acrylic acid, and I.</p>				
CC	31 (Synthetic Resins and Plastics)				
IT	Vinyl compounds (polymerization of, with ammonium (quaternary) compds. to polymers for shrinkproofing wool)				
IT	Ammonium compounds, substituted (polymerization with vinyl compds. to polymers for shrinkproofing wool)				
IT	Textiles (shrinkproofing wool, ammonium (quaternary) compound polymers with vinyl compds. for)				



- IT Phosphonic acid, vinyl-, polymer with vinyl acetate and vinyl chloride  
(for lacquers)
- IT 2-Butanone, 3-methyl-, polymer with diallyldimethylammonium chloride  
(to polymer for shrinkproofing wool)
- IT 25136-75-8, **Acrylamide**, polymer with acrylic acid and  
diallyldimethylammonium chloride  
(for shrinkproofing wool)
- IT 108-05-4, Vinyl acetate  
(polymerization of, with ammonium (quaternary) compds. for  
shrinkproofing wool)
- IT 107-13-1, Acrylonitrile  
(polymerization of, with quaternary ammonium compds. to polymers for  
shrinkproofing wool)
- IT 79-10-7, Acrylic acid  
(polymerization with quaternary ammonium compds. to polymers for  
shrink-proofing wool)
- IT 119658-32-1, Sulfonium, diallylethyl-, ethanesulfonate  
(polymerization with vinyl compds. for shrinkproofing wool cloth)
- IT 6982-68-9, Ammonium, dimethylbis(2-methylallyl)-, chloride  
(polymerization with vinyl compds. to polymer for shrink proofing wool)
- IT 48042-45-1, Ammonium, diallyldimethyl-  
(polymerization with vinyl compds. to polymer for shrinkproofing wool)
- IT 27015-40-3, Styrene, polymer with diallyldimethylammonium chloride  
(to polymer for shrinkproofing wool)
- IT 6982-68-9, Ammonium, dimethylbis(2-methylallyl)-, chloride  
(polymerization with vinyl compds. to polymer for shrink proofing wool)
- RN 6982-68-9 HCAPLUS
- CN 2-Propen-1-aminium, N,N,2-trimethyl-N-(2-methyl-2-propenyl)-, chloride  
(9CI) (CA INDEX NAME)

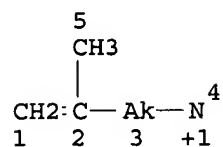


● Cl<sup>-</sup>

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L5 SCR 2043  
L6 STR



## NODE ATTRIBUTES:

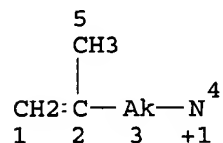
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CONNECT IS E2 RC AT 3  
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DEFAULT ECLEVEL IS LIMITED  
ECOUNT IS X4 C AT 3

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RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 5

## STEREO ATTRIBUTES: NONE

L7 52 SEA FILE=REGISTRY SSS FUL L6 AND L5  
L8 SCR 2043  
L9 STR



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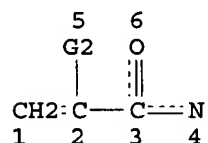
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ECOUNT IS X4 C AT 3

## GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 5

## STEREO ATTRIBUTES: NONE

L10 ( 52) SEA FILE=REGISTRY SSS FUL L9 AND L8  
L11 STR



VAR G2=H/CH3

## NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

## GRAPH ATTRIBUTES:

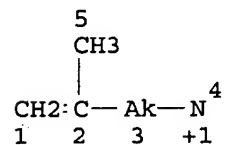
RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 6

## STEREO ATTRIBUTES: NONE

L12 32 SEA FILE=REGISTRY SUB=L10 SSS FUL L11

L13 STR



## NODE ATTRIBUTES:

CHARGE IS E+1 AT 4

CONNECT IS E2 RC AT 3

DEFAULT MLEVEL IS ATOM

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ECOUNT IS X4 C AT 3

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NUMBER OF NODES IS 5

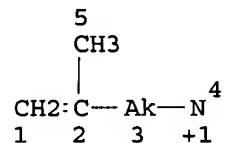
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L14 SCR 2040

L15 562 SEA FILE=REGISTRY SSS FUL L13 AND L14

L16 SCR 2043

L17 STR



## NODE ATTRIBUTES:

CHARGE IS E+1 AT 4

CONNECT IS E2 RC AT 3

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

ECOUNT IS X4 C AT 3

## GRAPH ATTRIBUTES:

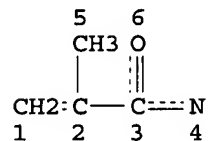
RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 5

## STEREO ATTRIBUTES: NONE

L18 ( 52)SEA FILE=REGISTRY SSS FUL L17 AND L16

L19 STR



## NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 6

STEREO ATTRIBUTES: NONE

L20	1	SEA	FILE=REGISTRY	SUB=L18	SSS	FUL	L19
L21	184	SEA	FILE=HCAPLUS	ABB=ON		L15	
L24	11	SEA	FILE=HCAPLUS	ABB=ON		L7 OR L12 OR L20	
L25	8	SEA	FILE=HCAPLUS	ABB=ON		(L24 OR L21) AND PAPER?/SC, SX, AB, BI	
L27	<u>3</u>	SEA	FILE=HCAPLUS	ABB=ON		L21 AND <u>STRENGTH?</u>	
L28	<u>8</u>	SEA	FILE=HCAPLUS	ABB=ON		L27 OR L25	
L29	0	SEA	FILE=HCAPLUS	ABB=ON		L28 NOT L25	

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